REPEATER JOURNAL

CVRA - SouthEastern Repeater Association, Inc.

February 1983

1.25

REPRESENTING UHF-VHF INTERESTS THROUGHOUT VIRGINIA, NORTH CAROLINA, SOUTH CAROLINA, TENNESSEE, & WEST VIRGINIA

MAD DOG 915 . . . THIS IS RED DOG 385

The Story, The Service of the CAP And The Many Amateurs Who Are Members!

ICOM IC-740

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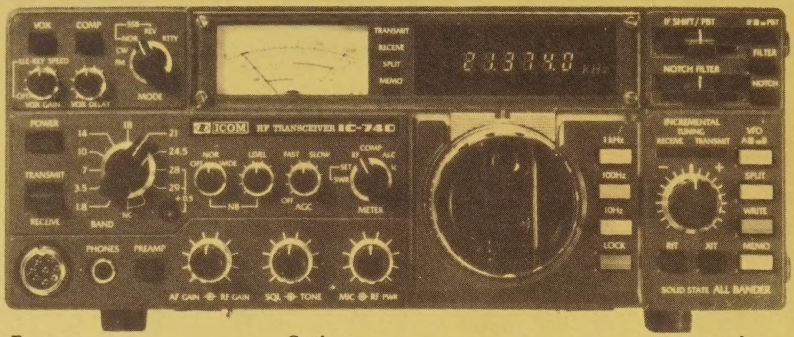

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Accessories

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ICOM IC-R70

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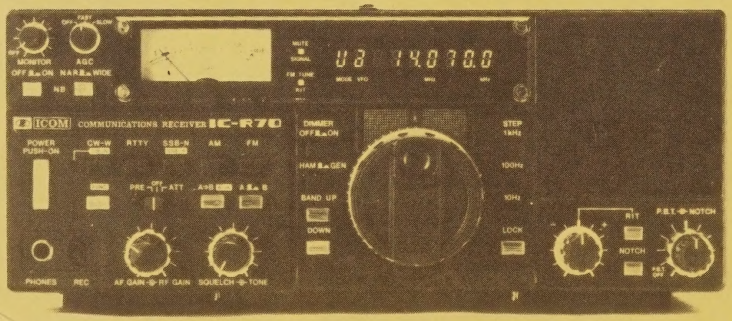

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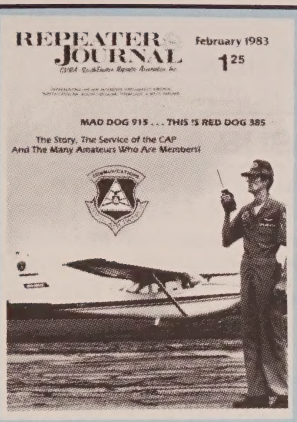
REPEATER JOURNAL
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MAD DOG 915 . . . THIS 'S RED DOG 385
The Story, The Service of the CAP
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ON OUR COVER

When you think CAP, you think of planes, searching for downed aircraft and communications. There is more to CAP than that. Our cover picture shows 2Lt. Wayne Byerly, RED DOG 384 (N4BOJ) communicating with Cpt. Aubrey Banks MAD DOG 915 in the plane who is ready for take off. See our story this issue about Civil Air Patrol and the many Amateurs who help make up their ranks. (Photo Ctsy: Holli Nelson, KB4AKM)

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REPEATER JOURNAL

CVRA-SouthEastern Repeater Association, Inc.

FEBRUARY, 1982
VOL. 12, NO. 1
ORGANIZED IN 1971
"IN OUR 12th YEAR"

Editorial Comment

Well . . . Here We Are . . .

This is our first edition of the "Repeater Journal" with the new 8½x11 format. I'm a bit rusty at layout with this size, but it's coming back fast. My previous experience in magazine layout dealt mainly with formats such as this, but that ended about seven years ago.

The old Journal format was difficult from the first issue to the last, trying to get copy to fit, fill difficult holes and make an attractive piece for you readers.

You will note a distinctive change of style in this new format. We have changed our headlines around a bit, opened up the copy allowing more white space to give a better visual effect, and make it easier to read.

I must say, I've been quite overwhelmed at the response to our new format, especially the advertisers. Our local-area dealers, most of them, liked the new idea for the Journal. The biggest interest came from National manufacturers and distributers. As we read the interest from the beginning, we began to solicit advertising from them and found our first attempts to be most satisfying. Even without a printed copy of our new format, several (as you can see throughout) went with us, starting this issue.

We never intend to pressure for heavy advertising. We plan to keep the Repeater Journal constant with about the same advertising/news mix we have had in past years. Since advertising doesn't have to totally bear the cost of publishing the Journal, we won't have to fill it so tight with advertising as many National magazines have to do for survival.

Our reasons for taking on National advertisers is simple. We feel additional equipment information and services will be made to you our faithful readers

Continued on Page 32

We Need Your Input and Ideas

One of the major topics of discussion at the CVRA-SERA Board of Directors meeting in January was that of the crowded Repeater conditions on the two meter band.

Although no ironclad course was set for future coordination policy, the board did discuss ways of overcoming problems to be faced in the near future on frequency coordination. The North Carolina District is the one nearest saturation with large portions of the State so abundant with repeaters that frequencies for new repeaters are becoming very hard to find. Tennessee will face the problem next, although down the road a few years.

One of the main agreements of discussion among board members is the rights of the existing repeater owner. How far can we go to protect the channel they have held for years. In the same light, the rights of new or prospective repeater owners searching for a frequency must be dealt with in a postive way. Repeater users must be taken into consideration, to provide a home repeater that they have been supporting that can do the job without unnecessary interference.

Some of the suggestions made for future consideration by the Board included minimizing interference during coordination, and coordinating new frequencies with strings attached. Other consideration included: (1) Local repeaters, utilizing linking for additional coverage, (2) PL or tone access, (3) Reducing adjacent channel distances on the sub band frequencies, (4) Limitations on height and ERP of new coordinations, (5) Suggest updating of receivers, adding filters where necessary, and (6) Purge the repeater lists and return to coordination pool frequencies of coordinated repeaters that never got on the air in a prescribed amount of time, or those off the air with no indication of returning to the air.

Continued on Page 43

REPEATER JOURNAL

FEBRUARY - APRIL 1983

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AND THEIR ASSISTANTS
LISTED BY STATE ON
BACK COVER

About CVRA-SERA . . .

CVRA-Southeastern Repeater Association, Inc. is one of the largest Repeater Organizations in the United States. In our 12th year of operation, the Association is positive proof that coordination efforts have paid off in the Districts it serves. Two of our States are fifth and sixth in the Nation in numbers of Amateur repeaters. Our area is virtually interference free due to cooperation and coordination efforts of our Amateur repeater owners and CVRA-SERA over the past 11 years.

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Next Issue

The Repeater Journal will present a Special Section in the May Issue about the Computer boom – how it is effecting Amateur Radio, and what are the most popular things being done with computers.

About the Repeater Journal . . .

The CVRA-SERA REPEATER JOURNAL is published quarterly, during the months of February, May, August and November of each year and mailed free to members of CVRA-Southeastern Repeater Association, Inc., a non-profit coordinating organization made up of repeater owners and users. Permission is granted for use of material contained in the REPEATER JOURNAL, provided proper credit is given. The REPEATER JOURNAL Editor will swap newsletters with other Repeater Councils and News organizations on request. The REPEATER JOURNAL press run is 4,500 copies with circulation membership in excess of 3,900 and is entered as Third Class Mail at the Post Office in Greensboro, N.C. REPEATER JOURNAL copies may also be obtained at most area hamfests for $1.25 per copy. All news and Newsletter exchanges should be mailed to the Editor and Publisher, Wayne C. Williams, K4MOB, 600 Lakedale Road, Colfax, N.C. 27235.

About Associate Membership

Repeater users and Amateurs are invited to join CVRA-SERA as Associate Members. A membership fee of $4.00 per year will enable members to support the organization and receive the "Repeater Journal". Note: Associate Membership deadlines are on the 15th of the month preceding months of publication – Jan. 15, April 15, July 15 and October 15. Persons joining or renewing their membership must have their application into the Greensboro Post Office Box by these deadlines to receive the next upcoming Repeater Journal in February, May, August and November. Memberships received after any deadline will not receive the next to be published Journal, but instead will receive the forthcoming issue the next quarter. Memberships received at hamfests will receive a current "Repeater Journal" as long as supplies are available and the next regularly scheduled issue through the mail.

About Full Repeater Membership . . .

Officers and Directors are elected from members of CVRA-SERA Full Membership. Any repeater owner or club may join our organization as a Full Member by filling out an application and submitting it with $8.00 annual membership fee. Two representatives are named for each membership and each receive the "Repeater Journal." The Full Member repeater is appropriately recognized as a full member repeater in our repeater index in the Journal. Full Memberships all expire on December 31 each calendar year.

Began New Two-Year Term Jan. 1

Five Incumbent Directors Re-Elected Another Term

—by Wayne C. Williams, K4MOB

Two New Vice-Directors

Apparently there was satisfaction with the performance of all five CVRA-SERA District Directors as each were re-elected to their post. Directors serve for a period of 2 years, beginning with even numbered years. The new term will cover 1983 and 1984.

NORTH CAROLINA

The largest CVRA-SERA District had a run-off election for Director. Results were announced just after Christmas. Ken Woodard, WA4BVW, the incumbent, won over an attempt by Danny Hampton, K4ITL to be elected to the office. The election was held by mail ballot to all Full Members in the North Carolina District.

Hampton told the Repeater Journal editor that he was not upset at all about losing. He said he would continue to work for CVRA-SERA in some capacity as needed.

Calvin Dempsey, WA4UQC of Tarboro who was unopposed will retain the office of Vice-Director.

TENNESSEE

The 2nd largest CVRA-SERA District re-elected their Director, Sam Kirby. Expressing a wish not to run again for Vice-Director, Cliff Hensley, WB4NKL was replaced by J. Tom Park, of Gallatin.

Kirby, the first Director for Tennessee when they became part of CVRA-SERA in 1979 enters his second term in office.

Kirby said he had met most of his goals his first term in office. He has made good progress in the Eastern part of the State and is now working hard with the assistance of David Wolfe, Western Tennessee Coordinator for the Tennessee Repeater Advisory Committee. Sam said he and Dave were introducing CVRA-SERA and our services to Western Tennessee repeater owners. Several Western area repeaters have joined for 1983.

VIRGINIA

Mike Williams, KC4AO began his second term as Director for the Old Dominion after his re-election. Mike, who works near Richmond and commutes home to Danville on weekends has a strong and wide knowledge of the State in his unique travel situation.

Lee McDaniel, WB4QOJ of Roanoke was elected to the post of Vice-Director succeeding Amos Rhames, K4WQS.

SOUTH CAROLINA

Al Harney, N4EOY of Columbia has been re-elected as Director of South Carolina. Garry M. Barnette, WA4MDP of Summerville will continue as Vice-Director.

Al reported things should be settling down this year after some hectic times and shifting around in his business life.

WEST VIRGINIA

The unique dual-Vice-Directorship in West Virginia seems to be working as Mike Palmer, K8LG of Morgantown, and Karl Morris, WB8GDY, of St. Albans were re-elected. Palmer was formerly Director.

After assuming the role of Director in mid 1982, Ted Wolfe, WD4KHL, of Cabin Creek was re-elected to the post of Director.

This threesome has full backing of the West Virginia Radio Council, an organization that covers the entire State (all hams assumed members). Palmer is also President of the Council.

OTHER INTERESTS

GEORGIA – The Georgia area has been interested in CVRA-SERA for several years now. The number of Georgia repeaters joining our organization grows each year.

Presently, Lindsay Cleveland, W4IZI of Stone Mountain who is the CVRA-SERA computer keeper of records, is working with John Robertson, N4BGL to introduce CVRA-SERA to Georgia repeater owners and Amateurs. Robertson, from Lawrenceville is presently frequency coordinator for the Georgia Repeater Council. Lindsay who was transfered to Georgia in mid 1982 is working to get the word out to Georgia hams about CVRA-SERA.

EASTERN KENTUCKY – There is some interest in CVRA-SERA from border Kentucky amateurs. Several repeater owners are expressing interest in joining as full members, even though the State is not recognized as a CVRA-SERA District. Terry West has been contacting our organization and sending news from the area.

HELP NEEDED

Many of the Directors have expressed the desire for more help in their Districts. They find it exceedingly difficult to find Amateurs, Full or Associate Members, who would served as Assistant Directors.

The Assistants are named by Directors to serve their area and pass information back to the Director about repeater changes, coordination, news and anything else to assist the Director in keeping fully aware of what is happening across District.

Any Amateurs who feel they would like to serve as an Assistant to their State Director are urged to call or write him. His name, address and phone number is on the back cover of the Journal.

The Repeater Journal Staff wishes the new State Officials the best . . . "Keep up the good work, fellas!"

You should coordinate!

If you plan to place a repeater on the air you should coordinate with CVRA-SERA. Lots of private repeaters, and recent coordinations may not appear in the Repeater Journal. Be safe—coordinate!

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The 5 × 9 + 20

March 19-20, 1983

ARRL Roanoke

- ★ Over $15,000. Worth of Prizes.
- ★ Over 140 commercial boothes set up by all the major manufacturers and dealers of Amateur Radio and Computer Equipment.
- ★ Many special programs, forums and discussions on all aspects of Amateur Radio and Personal Computers. ★ Many family activities.
- ★ DX QSL's verified by ARRL.
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- ★ HUGE indoor Flea Market.

1983 Charlotte Hamfest and COMPUTERFAIR

For Brochure and Registration Information Write:
W4BFB, Mecklenburg Amateur Radio Society,
2425 Park Rd., Charlotte, N.C. 28203 (704) 376-4162

dB Hamfest

Civic Center Charlotte, N.C.

Division Convention

The Pre-Registration drawing will be at 10:00 AM Saturday (March 19). You do not have to be present to win.

Pre-Registration Prize: KENWOOD TR-2500

MECKLENBURG AMATEUR RADIO SOCIETY, INC. W4BFB

Convention Headquarters:
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ARRL

Pre-Registration Form

Mecklenburg Amateur Radio Society
2425 Park Road, Charlotte, North Carolina 28203

I would like to Pre-Register for the Charlotte Hamfest, March 19-20
Enclosed is my check for:

___ ***Hamfest Tickets @ $5.00 ea.** ..... $ _____
___ ***Flea Market Tables @ $7.00 ea. (1 Day), $10.00 ea. (2 Days)** .. $ _____
Total ..... $ _____

NAME _____ CALL _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

*** Monies must be received in Charlotte no later than March 11, 1983.**

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Repeater owners, display your repeater and its frequency for travelers in your area. You can list your repeater, its location, call sign, frequency and a brief message in our Business Card section for only $14.00 a year.

If you have a club that caters to travelers or any service, why not show it in the Business Card section of the Repeater Journal.

If we get enough public services listed, we will start a special page listing only repeaters and clubs. So send in your card or message today. Send $14.00 and your message (we'll set the type for you if you desire) to: Ken Holiday, WA4DYY, Sales Manager, 1923 Halifax Court, High Point, N.C.

Deadline for upcoming MAY Repeater Journal is April 1st. Sorry only 1 year contracts are available at the $14.00 rate.

VA Ham (No Pun Intended) Helps West Virginia Ham

—by Ben Berisford N8EBT
(from TSRAC B-N-T Newsletter)

My XYL and I spent a fine Thanksgiving this year with our son and his family in Oakton, Va. (near Fairfax) We kept up with the weather forecaster so as to decide when to return home. All indications were that Sunday would be the day.

In the Winchester area I activated my 2-meter rig and their repeater. I asked if anyone could give me a report on the highways ahead going to Cumberland, Md. Jim Richmond of Front Royal, Va., KE4WN, answered my call.

He suggested I stand by and he would contact Cumberland and get back to me. In a very short time he was back with a report that the roads in that area were icy and hazardous and no one should drive that route! The suggestion was to go on to the Pennsylvania Turnpike, which we did. We found considerable traffic but the road had been cindered and there was no ice or snow.

We arrived home safely, albeit a little later than usual and thanks to the 2-meter equipment and the kind assistance of KE4WN. (B-N-T Editor, Ralph McDonough, K8AN included a note that TSRAC has sent KE4WN a Certificate of Appreciation for assisting one of its members.)

11 Months of Hamfests

The annual hamfest season has stretched to 11 months throughout the year. The first one begins in Richmond, Va. in January, and the last one is in Greensboro, N.C. the last weekend of November.

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-HONOR ROLL-

By State – NOT In Alphabetical Order – Numbers Indicate More Than One Repeater

These Repeaters Were Renewed prior to January 1

North Carolina Wins

North Carolina repeater owners did it again! They helped the North Carolina district cop the Category of most repeaters joined prior to Jan. 1, 1983 and also for the largest percentage of total repeaters in the State, which due to numbers of total repeaters was a great accomplishment.

Overall membership in by Jan. 1 were 197 representing some 268 repeaters. (some memberships include more than one repeater) This compares to 144 mem-

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NORTH CAROLINA

Charlotte, WB4KPF (2)
Hndsn/Pinnacle, WA4KNI
Spivy Mt/Ashvl, W4MOE
Greensboro, N4AZM
Winston-Salem, WA4GIC
Shelby, WD4DJA (2)
Franklin, N4AC
Canton/Chbrs Mt, WB4OKG (3)
Marion/Old Fort, KA4DEC
Mt. Pisgah, WA4BVW (2)
Mt. Mitchell, WA4BVW (3)
Morganton, K4RP
Waynesville, N4SM
Williamston, KA4KNU
Asheboro, WD4AIB
Fayetteville, WR4ANN
Burgaw, K4LZY
Raleigh, W4DW
Lumberton, WB4MDI
Smithfield, KD4JQ
Lewisville, N4GGK
Union Cross, WA4RBW
Raleigh, K4BWC
Dunn, WB4FXM
Eden/Stoneville, WA4QBG
Locust, WA4LBT
Albemarle, K4OGB
Boone, WA4KDB
Rocky Mt., WB4WAA
Burnsville, WA4LLR
Charlotte, W4BFB (3)
Charlotte, WR4AEU
High Point, KA4DHP
Asheville, NC4N
High Point, K4AZA (4)
Roanoke Rapids K4PUV (2)
Level Cross/GBO, K4VUW
Raleigh, N4BEA (2)
Smithfield, W4MKL
Goldsboro, K4CYP
Greensboro, K4SNI
Dillsboro, WB4NSS
Bkrs Mt/Chryvl, WB4UDS
Cherryville, WB4UDS
Sanford, WB4EJJ
N. Wilkesboro, K4ITL
Ahoskie, WB4YNF
Asheville, WA4QCO
Greensboro, WA4MSS
W-S/Sauratown, WB4KQN (3)
Fayvl/Ft. Bragg, W4LPL
Fayetteville, W4EHF
Fayetteville, N4EWG
Charlotte, KE4ZC (3)
Roaring Gap, WB4PZA
Lexington, K4IZM
Lenoir, KN4K
Raleigh, K4ITL (2)
Wilmington, WB4UNG
Wilmington, W4VNK
Locust, WA4ZIA
Gast/Spencer Mt., W4REW
Hillsborough, WA4WTX (3)
Durham, WA4WTX
Raleigh, N4CBI
Greenville, WA4DAN
Greenvl/Estn NC, W4GDF
Salisbury, W4EXU (2)
Jacksonville, WD4FVO
Statesville, AI4O
Mt. Airy, WA4ZAS
Concord/Kann, K4CEB
Maco, WA4LED
Westfield/Sauratown Mt, W4RXG (2)
Fancy Gap/Mt Airy, WD4MDP
Madison, KA4YFF

VIRGINIA

Martinsville, AB4L
Williamsburg, W4NTG
Newport News, WB4CTF
Lynchburg, WB4DBB (2)
Roa/Poor Mt., WB4DBB
Galax/Fries, WA4DFH (2)
Hillsville, WD4BTJ
Fredericksburg, WB4LNT
Wise/Hi Knob, K4AXO
Waynesboro, W4BLD (2)
Afton Mt., W4BLD
Forest, K4STE
Waynesboro/Afton, W4PNT
Danville, WB4GJG
Giles Cty., K4TUE
Staunton, WA4ZBP (2)
Marion, N4BIW
Warsaw, WA4UAF
Lynchburg, WA4RTS
Jonesville, WA4OVC
Chesterfield, KA4CBB
Winchester, W4RKC
Duffield/Powell Mt, KA4BHH
Petersburg, K4ARO (4)
Petersburg, WA4MRJ
Danv/White Oak Mt., K4WQS
Radford, KC4WA
Blacksburg, AB9I
Bristol, WD4CYZ
Roanoke, WB4QOJ (2)
Charlottesville, WA4TFZ (3)
Chesapeake, N4SD
Lexington, WA4WBD
Galax/Briarph Mt, N4VL
Virginia Beach, WA4KXV (2)
Manassas, W1CRO
Norfolk, NE4D
Bedford, WB4JBJ
Richmond, W4SQT
Richmond, W4ZA
Fincastle, WR4ALW
Hampton, WR4ALW
Barren Springs, K4HZS
Dublin, KT4Z
Newport News, WA4OHX

TENNESSEE

Sparta, W4BSA
Cookeville, N4WS
Knoxville, WA4YON (2)
Morristown, WD4RTT
Short Mt., W4KKO
Knoxville, WB4GBI (3)
Knoxville, W4BBB
Decatur/Pone Kb., W4RJC
Knoxville, WA4TEM
Cove Mt/Gatbg, WA4KJH
Chattanooga, WA4ZOK (3)
Knoxville, KB4NK
Greeneville, N4TV
Oak Ridge, K4EAJ (3)
Gallatin, WD4KWD
Nashville, WB4ZSA (2)
Gallatin, WB4ZSA
Greeneville/Grystn, WA4LYF
Johnson City, WB4IKB
Knoxville, WB4IOB (2)
Knoxville, WB4HAP
Knoxville, K4HXD (5)
Medina, K4BEZ (2)
Waverly, NO4Q
Brownsville, WA4ABU
Martin, WA4ZQX
Alamo, WB4EDS (2)
Stantonville, KA4OHC
Johnson City, KE4FH
LaFollette/Wlt Mt., W4TZG
Short Mt., W4YXA
Greeneville, WB4NKM (2)
Knoxville, WA4GZE
Oak Ridge, W4SKH (2)
Hermitage, WB4RAB
Blountville, WA4KMG
Gallatin, WA4YQC (2)

SOUTH CAROLINA

Anderson/Loc, WR4AIO
And/Sas-Mt, WR4AIO
Whitehall, W4BWZ
N. Augusta, K4VF
Aiken, N4ADM
Simpsonville, WA4LDP
Grnvl/Caes Hd, W4NYK
Grnvl/Paris, W4NYK
Easley/Sass. Mt, KJ4X
Prosperity, WB4OCB
Ft. Jackson, WB4OCB
Georgetown, K4GOL
Lancaster, W4PAX
Greenville, W4AZT
Myrtle Beach, WD4JMT
Dillon/Pee Dee, NN4N
N. Augusta, K4FKJ
Rock Hill, K4YTZ (2)
Greenwood, WB4UGA
Rocky Spur, KJ4I
Sumter, WA4UMU (2)
Greenville, W4AMC
Pickens/Csrs Hd, WB4QHF
Pickens, WB4YXZ
Florence, WA4ISM
Cheraw, KA4ABW

WEST VIRGINIA

Franklin, W3RUA
Terra Alta, WB8PHU
Richwood, K8VKB
Princeton, WB8NRK
Parkersburg, WA8CRW
Parkersburg, WD8AXY
Dunbar, K8VKI
Parsons, K8VHQ
Kingstn/Lk Knob, W8FG
Morgantown, K8LG
McMechen, WA8ULB
McMechen, N8CFX
Welch, WB8SXZ
Bridgeport, K8VNQ
Morgantown, W8CUL (2)
St. Albans, WB8GDY
St. Albans, K8BCH
Grafton, K8VNQ
Oak Hill, W8GH
Ravenswood, WD8JNU (2)
Fairmont, W8SP
Weirton, KC8JN

GEORGIA

Toccoa/Curra Mt., KA4DIP
Hartwell, KY4T
Augusta, N4BMA
Athens, K4TQU
Gainesville, W4NSO
Augusta, W4ALK
Atlanta/Bell, W4PME
Savannah, W4HBB (2)

KENTUCKY

Black Mountain, NQ4C

ALABAMA

Birmingham, WD4BXA

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Annual Board Meeting at Kingsport Election, Coordination, Bandplan on Agenda

—by Wayne C. Williams, Editor

The annual CVRA-SERA Board of Directors meeting was held at Kingsport, Tenn. on the weekend of January 8-9. at the local Holiday Inn. Three of the five Districts were repesented as well as three of four Officers and Charimen of the Full Membership, Associate Membership, and Publications committees.

Informal but important meetings were conducted Saturday night until 1 a.m. with adjournment until 8 a.m. Sunday morning. The formal session began shortly before 9 a.m. Sunday morning and lasted until 12:30 p.m.

THE ELECTION

Directors and Vice Directors for the 1983-84 session were installed and acknowledged by President Don Morris, AB4J. (See related story this issue)

Ken Woodard, WA4BVW, North Carolina Director who was re-elected, announced the appointment of Danny Hampton, K4ITL to serve as Assistant Director for the District. Hampton had unsuccessfully challenged for the office of Director of North Carolina.

Woodard said the State which is the largest in CVRA-SERA territory will be split in half with a line extending from North to South through the Winston-Salem area. He said Hampton will be responsible for coordination East of the line, and he will coordinate West of the line.

President Morris said although this is kind of unusual in CVRA-SERA, it was felt with the expertise and desire of Danny to work with the organization and his great knowledge of repeaters and frequencies, his talent would be of great value to Woodard who lives in the mountainous part of the State, requiring considerable variation in coordination policies from that of "flat land" coordination in the Eastern part of the State.

"This is where Danny can really help", said President Morris.

Hampton will work closely with Calvin Dempsey, WA4UQC, Vice Director of North Carolina. Repeater owners in the Easter sector of North Carolina should contact Danny, K4ITL for Coordination, problems, information or whatever is required of CVRA-SERA. Persons in the Western half should contact Ken, WA4BVW. (Names & addresses appear on back cover).

BAND CROWDING

Considerable time was spent on the subject of coordination policy by the board. Ken Woodard reported that approximately 50% of North Carolina had no frequencies left that could be coordinated under present policy of coordinating to prevent some form of interference to other repeaters. Some of the problems discussed were adjacent channel closeness of repeaters, problems due to total number of repeaters, repeater growing from small local machines to large regional machines and the necessity of continuing to assign frequencies to new prospective repeater owners.

It was acknowledged that more repeaters will continue to go on the air and they officially were just as important to the owners as existing machines and had just as much right to spectrum space as any others.

The board also decided on six points to recommend for future action as the crowding continues to grow:

(1) Minimize interference with short range local repeaters and linking when regional coverage is required.

(2) The use of PL or tone control for repeaters that have problems of input interference.

(3) Minimum separation of Sub Band repeaters since there is 20 khz spacing as compared to only 15 khz spacing between standard pairs and split-splits.

(4) Purge the list of frequencies that have been coordinated in the past and remove frequencies from persons who have not put on repeaters or are not making an effort to get a machine on the pair they have coordinated.

(5) Educate owners to agree to limitation of height of antennas and limitations of power on new machines.

(6) Encourage repeater owners who are experiencing adjacent channel interference to update their equipment to today's technical standards and adding of filters, cavities and PL.

The board did not take any action at this time to alleviate the problem mainly because they were all wanting to delay minor interference causing coordination until repeater owners could be educated to the fact that the time has come, in many areas.

BAND PLAN

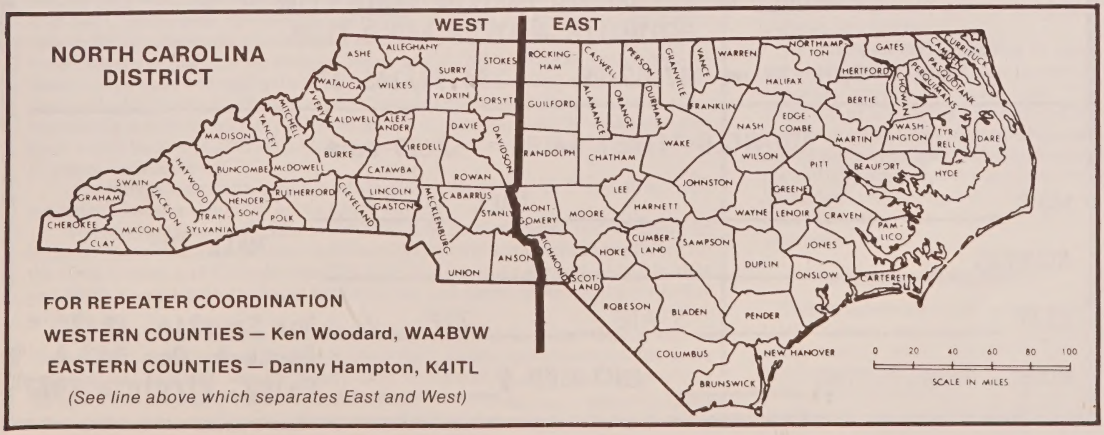
The CVRA-SERA board did provide a band-aid to the problem of crowded conditions by adding six new channels to the existing bandplan. All six channels will utilize existing repeater outputs which have low inputs, but giving the new channels high inputs. The Board acknowledged this was a temporary measure and additional efforts would have to be initiated in the very near future.

The new repeater channels added were: (Inputs and Outputs)

147.420-146.820	147.465-146.865
147.435-146.835	147.480-146.880
147.450-146.850	147.495-146.895

The new band plan inputs are at the bottom end of the 147 mhz simplex channels. With the new inputs assigned, the

Continued on Page 11


NORTH CAROLINA DISTRICT
WEST
EAST
FOR REPEATER COORDINATION
WESTERN COUNTIES — Ken Woodard, WA4BVW
EASTERN COUNTIES — Danny Hampton, K4ITL
(See line above which separates East and West)
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McPherson Wins Earlybird Full Membership Prize

Jack McPherson, WA4MRJ of Petersburg, Va. was named winner of the CVRA-SERA Full Membership prize.

Jack, a Full Member representative of the Petersburg, K4ARO repeaters received a Tokyo Hy-Power 30-watt amplifier after his name was drawn at the Director's meeting January 9.

Early Bird repeater owners had an opportunity to win the prize if they submitted their 1983 memberships into the organization prior to December 31, 1982.

The prize was provided by the Sales Manager of the Repeater Journal and obtained through Advertising revenues.

Annual Board Meeting Held at Kingsport

Continued From Page 9

simplex channels remaining in 147 include: 147.51, 147.525, 147.54, 147.555, 147.57 and 147.585.

The Board agreed to assign the six new channels only when absolutely necessary to new coordination and none would be available to any repeaters already on the air on another frequency.

BY-LAWS

The Board discussed the limited time available for mailing and getting ballots returned to the Secretary when mail ballots are necessary in elections.

Don Morris, AB4J and Lindsay Cleveland, W4IZI were named to a committee to look into By-Law changes which would result in more time for an election, yet enable the publishing of nominees from the nominating committee, and a nomination form for additional nominees in the November Journal, and to allow an election if necessary be held and results announced before December 31.

The committee will report by mail to the Board at least 30 days prior to the 2nd meeting scheduled at Shelby in September.

BUDGET

The Publications committee was unable to present a budget to the Board for 1984 due to unknowns in the changeover to a new format in the Repeater Journal and new advertising rates. The committee promised the Board a budget shortly after the February Journal was published.

FULL MEMBERSHIP

The full Membership committee told the Board that an all-time high number of Full Members had joined prior to January 1 this year. Vice-Directors were urged to go down their lists of Repeater owners who had not joined for 1983 and write letters to them encouraging membership. (See related story and Honor Roll this issue)

TREASURER

Ray Adams, N4BAQ reported to the board that the organization closed the year with about $500 in the bank. This did not include deposits made at the end of the year in which slips had not reached him. The deposits included most of the 1983 Full Membership dues, revenues from the November Repeater Journal, and one deposit of Associate Membership dues.

"We are healthy," said Adams, "with the new Associate Membership dues of $4.00 and advertising increases in the Journal, we should have a good year without any hitches."

He indicated that a padding to carry the organization through one quarter of expenses should be maintained. The purchase of a copying machine for the Publications and Full Membership committee pulled the bank balance down at the end of the year, but it was expected to be replenished without any problem in time for the end of first quarter expenses.

MEETING ADJOURNED

The Directors also discussed linking, UHF linking and control frequency assignments, postal non-profit status and prepaid dues liabilities.

The 1983 1st meeting concluded shortly after noon with a buffet luncheon.

Hamfest Conflicts – Some Dissolved Some Still There, Regardless . . .

Conflicting Dates of Two Hamfests Resolved

They were the same weekend last year, and it seemed destined they would do it again this year, but the Virginia Beach, Va. Hamfest and Asheville, N.C. Hamfest conflicting weekend has been resolved.

The Western Carolina ARS has announced they will move their Asheville Hamfest to a new date and increase the show to two days. Virginia Beach will remain on the scheduled 8-9 October date. The new date for Asheville is July 30-31.

Greenville SC Hamfest To Stay on Same Date

The Blue Ridge ARS had what they considered a good date for a hamfest, even though the last two years, another one was held in Tennessee on the same weekend.

This year, they got hit between the eyes, as Dayton announced its Hamvention will be held on Greenville's weekend.

The club met for several hours in January to decide whether to move or not. Finally they voted not to move, since the only nearby date would fall on Mother's Day weekend. So Greenville remains on the weekend of April 30-May 1 for their hamfests, as is Dayton.

Orlando – Charlotte Date Conflict to Stay

Word from the hamfest chairman of Orlando that the March 19-20 weekend was the only weekend available to them in the Expo Centre in Orlando. They said they had to move from the fairgrounds where they held the show last year due to unacceptable conditions to conduct a hamfest of quality. The chairman said he wasn't aware or hadn't even thought about conflicting with Charlotte when they accepted the date, and was quite shocked when he realized they were on the same weekend with Charlotte. He wished the Charlotte show much success, feeling that attendance would be scarcely effected by the conflicting date. He did agree that there would be some problems with manufacturers, especially those who chose not to attend both shows.

Charlotte, meanwhile seems confident their show will be bigger than ever, reporting almost a sellout of booth space already.

The fact remains, two major events both held the same weekend is a strain on manufacturers and large dealers, and since Charlotte is committed in the future for the Civic Center, and Orlando said they had to commit the same weekend in 1984 and 1985, it seems both shows, manufacturers, and major dealers will have to live with it.

We can't blame Orlando, they wanted a good place, the Expo Center was all that was left, and they had to take it when they could – unfortunately, the same weekend as Charlotte, who obviously can't be blamed because they are working the same weekend they have in years past.

—Wayne C. Williams, Editor

The Story of Your Civil Air Patrol and The Many Amateur Operators In Their Active Ranks

(Editor's Note) The Civil Air Patrol like MARS is well known in the Amateur ranks. Many CAP members are also hams. Like Amateurs they are continuously communicating with each other on VHF and HF frequencies. The communications mainly are centered on training through drills, nets and exercises. Seasoned veterans of CAP, many of them Amateurs, help train Cadets and new Seniors in the CAP ranks, and occasionally into Amateur radio. Holli Nelson, KB4AKM, in the following story tells of CAP in the area and how it works. Holli, a relatively newcomer to the Amateur ranks, is a 25-year veteran of CAP. He holds the CAP rank of Lt Colonel (LTC) and currently serves as NC Wing Director of Aerospace Education. He has 15 years experience in CAP communications. Holli, an Educator and Flight Instructor by profession is now helping others get into Amateur radio through scouting and CAP. On behalf of Holli and many CAP-HAMS we are pleased to present their story.

—By Holli Nelson, KB4AKM

If you tune off the amateur 2-meter band edges, you will find Civil Air Patrol has you surrounded! CAP has repeater inputs on 143.75 and 143.9 MHz and repeater outputs and simplex communications on 148.15 and 149.925 MHz. You will also find Civil Air Patrol frequencies scattered between the amateur allocations on the "low bands" and a smattering of CAPers within the ham community. So, tune your receivers outside the high end of 2-meters and you'll hear CAP's funny calls—Red Dog 62, Green Flight 310, Overland 17, etc. Unfortunately the law prevents your pushing the button and asking: Who are you? Where are you? What do you do? The same law prevents CAP members' keying the mic and talking to hams. The insurmountable 148.0 MHz wall stands between us.

No band edge barrier hampers communications in this **Journal,** so here goes:

Who are we?

Civil Air Patrol is about 63,700 people nationwide and about 9,500 in this **Journal's** circulation area who, like many amateurs, give much time and spend many bucks to be of service to the public in emergencies. CAP is the civilian auxiliary of the U S Air Force; its members are civilians, volunteers, and unpaid for services rendered. CAP members do hold rank similar to military rank and you will hear it used in official communications on the air. Some members choose to wear the CAP uniform which is similar to the Air Force uniform.

Civil Air Patrol members come in two age groups: Cadets are young men and women aged 13 (or 7th grade) through 20. Senior members start at age 18 and may remain active the rest of a lifetime.

CAPers, like amateurs, come from every social and economic background and represent every trade and profession and the spectrum of skills and interests. Contrary to public belief, most CAP members are not pilots and a pilot's license is not a requisite for membership.

Where are we?

The Civil Air Patrol is a nationwide organization with "Wings" organized geographically in each state, Puerto Rico, and the District of Columbia. The local or "grass roots" level, CAP's operational unit, is the Squadron. Some states or "Wings" use an intermediate command or administrative level—groups or sectors—between the Wing Headquarters and the local squadron. The eight Region Headquarters support the several Wings within their borders. CAP's National Headquarters oversees, coordinates, and administratively supports the Civil Air Patrol organization. While the Air Force exercises no command function in CAP, it does staff most of the administrative slots in the National Headquarters and has liaison offices at the Region and Wing levels. We cannot boast squadrons in every city and town, but none are far from a unit.

What do we do?

Civil Air Patrol has three missions: The Cadet Program, Aerospace Education, and Emergency Services.

The Cadet Program gives 24,000+ youths an exposure to aviation and aerospace subjects and careers as well as an introduction to military discipline and customs and to leadership.

Continued on Next Page

1 Lt Richard Simmons, W-S Squadron Leadership Officer, stands over Cadets Michael Steele, Scott Lambert and Gwyn Armfield (KA45JV). Cadets gain valuable CAP communications experience acting as relay operators in actual emergencies and simulated training exercises. Cadets perform valuable assistance to CAP veterans during exercises as well as emergencies.

CAPers Log 1,074 SAR Missions in 1983

Chaplain (Maj) Fred L. Horton (Red Dog 369/ NA4P), Asst. Chaplain, W-S Squadron, works communications as Emergency Services Officer, Maj Ned Vaughan-Lloyd (Red Dog 22) takes down information during a CAP squadron exercise.

CAP offers aerospace education to its own cadet and senior members. It also offers an extensive aerospace education workshop program to in-service teachers. Finally, CAP, through members' interface with the public, provides aerospace awareness for the general public.

Emergency Services is the mission we'll concentrate on here, for this mission has the most similarity and need for interface with amateur radio.

As of 1 December 82 CAP had logged 1,074 search and rescue (SAR) missions finding 711 objectives and saving 84 lives.

The public image is that of the folks who search for downed airplanes. Air search is but one of CAP's emergency services. The Patrol also provides emergency airlift for medical purposes, forest fire patrol, sundown patrol over recreational waterways, crash site security, aerial radiological monitoring, search for lost persons and vehicles, aerial damage survey of disaster sites, and anything else where Civil Air Patrol's resources can be of public service. One of these resources is aircraft and people to crew them. While most of the airplanes CAP uses are member owned and owner flown, some airplanes in the fleet are CAP owned and flown by member pilots. None are Air Force owned though a few have come through surplus channels. At this writing, CAP has flown over 15,200 hours on missions in 1982.

During a mission most CAP personnel serve on the ground. In the search context, ground teams provide invaluable input using two modes of search: interrogation or questioning of people as to what they might have seen or heard, and electronic search for an emergency locator transmitter (ELT) on 121.5 and 243.0 MHz. This electronic search resembles the ham "fox-hunt". Any mission, be it in the air or on the ground, requires a number of support personnel in mission planning and coordination, various administrative areas, food service, public information, air and ground crew briefing and debriefing, and communications.

A major difference between the hams and CAP members: Hams' major interest is radio communications; emergency services is but one of the things they do. Civil Air Patrol's interest is in emergency services as a primary mission; communications is one of the things CAP does to support the emergency services mission.

Communication provides an important support function. CAP's national radio net is about 27,000 stations strong, active, effective, well disciplined, available, and, like ARES, often overlooked in emergency planning by public safety agencies.

Currently CAP has the 2-meter FM frequencies listed above for relatively local communications between base, mobile, and air-mobile stations. Forty-two CAP repeaters in the CVRA/Southeastern Repeater Association states enhance CAP's 2-meter coverage. The 26.620 MHz AM frequency has proven to be excellent for very local communications especially where the older, crystal controlled, limited channel CB equipment is available at few dollars. The sunspot cycle, skip, and, in metropolitan areas, the high power CB bleedover has discouraged its use. "26" is, none-the-less, a fine frequency for training new operators—senior and cadet—and, most of the time, it serves well around a mission base. Civil Air Patrol has ten 4 MHz frequencies (SSB) from 4464.5 to 4627.0 KHZ checkerboarded around the country for state and regionwide communications coverage. CAP's 7 MHz

CAP Cadet Mark Byerly, 2nd operator, Red Dog 384/KB4DJD and Cadet Paul Banks, 2nd Operator, Red Dog 376, handle CAP communications during a Simulated Search Mission. The exercises were conducted last Fall by the Air Force and teams were evaluated.

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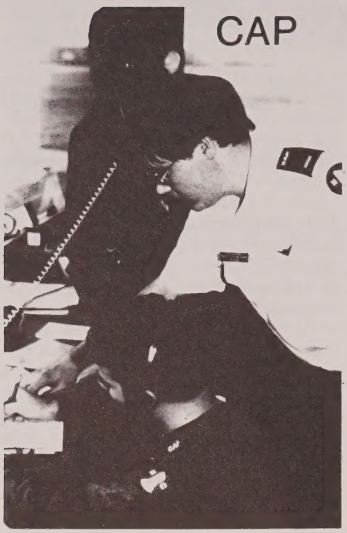

1LT Boyce G. Rogers, Jr. (Red Dog 383/WB4WOM) currently Communications Engineering Officer, Winston-Salem (NC) Sdgn. explains procedures to Cadet Larry Davis in one of the CAP realistic Civil Defense missions. Manning the telephone is 2Lt Wayne Byerly (Red Dog 384/N4BOJ) Communications Officer of the Winston-Salem Squadron.

frequencies are coming into wider use, and a few other HF frequencies are reserved for command use only. Two frequencies in the aircraft band are alloted for CAP air/air and air/ground communications.

Most of CAP's communication is on phone with a little teletype at command levels.

Generally speaking, Civil Air Patrol communicators, like most hams, purchase and maintain their own equipment. Subsidies are rare and surplus equipment is usually so obsolete as to be unsuitable. A number of "rigs" can be used on both amateur and CAP frequencies. Many CAP stations consist of converted or dual use ham gear. Others use converted commercial gear, and a few radios have been manufactured especially for CAP use. Many of the older 2-meter FM "rock-bound" transceivers are ideal for the non-ham CAP communicator who does not need the multiplicity of frequencies. The older crystal controlled five and six channel CB units are ideal for conversion to CAP's 26.62 MHz frequency. (Before you get rid of any older 2-meter or CB gear, think of finding it a new home in CAP!)

Licensing in CAP is quite different than in the amateur radio service. The CAP operator does not take an FCC exam—no code! He or she must hold an FCC Restricted Radiotelephone Permit and study and pass a stringent written test on CAP procedures and regulations. CAP then issues the CAP Radio Operator Proficiency Card. The other side of the coin: regulations limit the CAP operator to conducting CAP business including day-to-day CAP affairs as well as supporting the emergency service mission. You won't hear "CQ . . . CQ . . . CQ . . ", nor will you hear the typical QSO. QSL cards, DX, and certificate chasing are not a part of the CAP regime. Net operations, traffic handling—both formal and informal—are well known to CAP operators as is emergency service support. "Ragchews"—they rarely occur on the CAP frequencies—will seem very protracted and will deal only with CAP related subject matter. However, close and long-standing radio friendships exist among CAP communicators as they do among hams.

In the CAP service, frequency must be crystal controlled and periodically verified. The VFO is not in CAP use, but many ham/CAPers use ham gear with outboard or internal crystal oscillators. Finding a station is a bit easier since it will be on a particular frequency. No

Continued on Page 16

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1.5W	45-50W	2C050-2W
1.5W	80-90W	2C100-2/25
2W-5W	>30W	2C025-2W
2W-5W	>50W	2C050-2W
2W-5W	>100W	2C100-2/25
10W	100W	2C100-10/25
25W	100W	2C100-2/25
25W	100W	2C100-10/25

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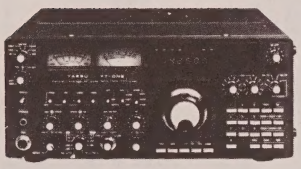
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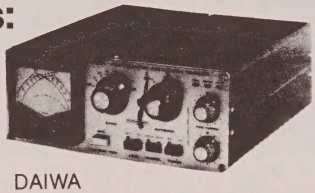
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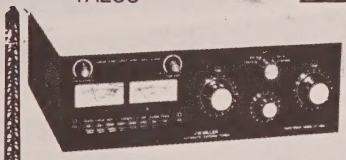
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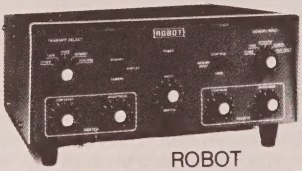
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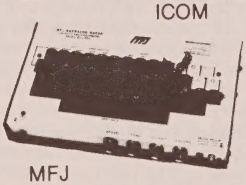
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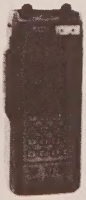
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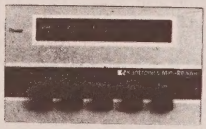
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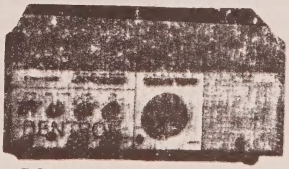
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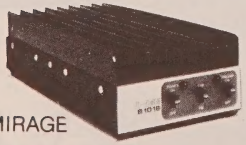
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need to hunt up and down or to move up or down to avoid interference.

Station licensing in CAP also differs in that the station license is not issued concurrently with or attached to the operator permit. It is a separate and distinct authorization issued to a specific radio station rather than to a specific operator. In CAP, many who are qualified operators do not own stations. The Civil Air Patrol Wing holds the FCC license which authorizes a maximum number of stations. CAP assigns tactical calls to these stations which, for the most part, are member-owned and "leased" to CAP. Thus, you will hear in North Carolina, for example, Red Dog 62, this writer's base station, Blue Dog 62, his mobile, and Mad Dog 62 if he operates air mobile. Seldom will you hear the full call: KIG 446 Red Dog 62. The tactical calls vary from state to state as do the station calls.

CAP operates under Part 87 of the FCC Rules, rather than Part 97, and under its own Communications Manual.

The band edge barrier needs to be breached, albeit off the air. "We must make every effort to develop a strong working relationship between CAP and amateur radio . . . " writes CAP Major John Creel, Jr. (WB3GXW), chairman of the CAP Middle East Region Repeater Committee. CAP needs hams, and amateur radio could use CAP. The amateur with an interest in emergency services, the related field work, and in traffic handling, will have fun in CAP. The CAP communicator erecting antennae and trying to start the generator at a mission base is a close kin to the ham at field day—and both are kin to Rube Goldberg. Differences are few: The CAP communicator is probably setting up his station at a local airport or forward mission base and he may have been called out at 2:00 a.m. with a need to be on the air a.s.a.p. instead of targetting the last weekend in June all year. He may be wearing a CAP coverall or uniform rather than the local radio club shirt or cap. The objective is the same—provide communications from a field location.

CAP has a number of experienced communicators and young people who need introduction to and licensing in amateur radio. Continuing Maj. Creel's statement above, " . . . and the best way is for as many CAP members as possible to get [amateur] licenses." The Winston-Salem (NC) Squadron has sponsored a Novice class for young people and selected adults this fall taught by a team of seven instructors including CAP 2Lt Wayne Byerly (N4BOJ), 1Lt Boyce Rogers (WB4WOM), Chaplain (Major) Fred L. Horton (NA4P), C/Sgt Gwyn Armfield (KA4SJV), John Thompson (KA4YBZ), Ben Wasilauskas (K4GHS), and this writer. Though still running at

Continued on Next Page

Communications Training Important

CAP student pilot takes training.

Pilot and observer going over pre-flight planning.

Direction finding equipment – to help find Emergency locators on downed aircraft.

this writing, the course will launch about 12 new novices, 8 of them under 16 years old and 8 CAP members.

In the emergency communications services, a liaison between ARES, RACES, and CAP is long overdue. In isolated situations and locations, CAP and ham radio have worked very closely and successfully together. This liaison needs development at all levels, but especially at the level where it must work in the emergency or relief situation—at the local level. Maj Creel and LTC Jim Botsford (W4MFK), the NC Wing CAP Director of Communications and a former ARRL SEC, on the CAP side of the house; and Jim Lehnberg (WA4TCR) and Jim Williams (NQ4T), EC's for Forsyth and Guilford Counties (NC) respectively, have all emphasized this need.

LTC Holli Nelson, CAP NC Wing Director of Aerospace Education has his ups and downs occasionally in an emergency situation. Here he improvises an autopatch the hard way patching the telephone into a CAP radio using the phone handpiece as a speaker for the other radio. LCT Nelson was in the process of coordinating fire-spotting aircraft with the Forsyth County Sheriff's department.

Why?

1. We are all in communications for fun.
2. Both amateur and CAP organizations are in volunteer, public service in both emergency and non-emergency situations.
3. Both have vast and disciplined nets to move traffic.
4. In an emergency situation, an equipment failure such as a repeater going down or an overload of traffic will necessitate an alternate route for traffic. A major emergency will require reliable, alternate traffic routes. CAP and amateur Emergency Services can provide each other with this back-up. In order to work smoothly, the coordination needs to be in place prior to the "balloon's going up".
5. Such programs as "skywarn" are missing a batch of pairs of eyes scattered about by depending solely on amateur stations. The CAP net waits to be used.
6. On the amateur side, Jim Lehnberg comments that, in the search situation, amateurs can provide "eyes and ears".
7. CAP has occasional need for the technically competent people found among the amateur radio folk who could serve, if not as CAP members, as consultants.
8. Could be fun.

As we said above, there are a number of isolated examples of CAP/ham cooperative efforts: Forsyth County ARES and CAP have worked together during the national emergency test both last October and in 1981. CAP provided additional people and stations and an alternate repeater for passing traffic when the 04/64 repeater "failed" and some stations were unable to access the alternate repeater. CAP worked through a liaison operator licensed in both services. Three alternate liaison stations were available. Durham and Hickory (NC) CAP communicators presently work closely with the local hams and several CAPers are hams. In the Hickory, NC area, CAP members spent the night of the Saturday after Thanksgiving and some of Sunday providing security surveillance at a crash site. They could not access a CAP repeater with HTs from the location but had no trouble working through the Barrett's and Baker's Mountain repeaters. CAP member/hams Bill Dale (W4NWL), Greg Sellers (WB4HRR), Dan Renfro (WA4PXV), Reid McKay (WA4DSZ), Larry Pierson (WD4CEB), and Jim Carr (WB4TLO) worked the mission and were able to handle local communications on the amateur VHF frequencies. Five other local hams answered the emergency call and were available if needed. CAP 1Lt Boyce Rogers (WB4WOM) found himself with a ground team on a SAR mission on Little Grandfather's Mountain on December 6, 1981. He had traffic for the mission base in Winston-Salem and was unable to access the CAP repeater on Sauertown Mountain. He passed his traffic via WB4GQP, W4BOH, N4ANE, and the landline.

Civil Air Patrol has recognized the need for cooperation. The Middle East Region CAP Communications Test Exercise Thanksgiving eve required some traffic to be passed on the 40m amateur band. The region is making a concerted effort to identify CAP/ham stations.

The job of interfacing has begun in seveal areas—it must continue. Where it has not yet started, it needs to.

Most hams are unaware of CAP's capabilities and missions if not of its very existence. Some problems then develop in the traffic moving. A non-CAP amateur injected a couple of messages addressed to three selected CAP unit commanders in a local amateur traffic net. One message was delivered to one of the three addressees through a MARS station by landline; the others apparently

Continued on Next Page

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LTC B. B. (Dink) McCormick (Middle East Four/WB4RFH)currently serving as Middle East Region CAP Director of Communications takes time to instruct CAP Cadets on operation of a generator. Many times CAP has to set up lights as well as communications with portable or mobile generators in emergency situations.

disappeared in the system. Traffic seems to move easily between the amateur and MARS nets, but no liaison exists or was called for between the amateur and CAP nets. If routine traffic cannot make the internet jump, can emergency traffic do it when the pressure is on? Granted, we generalize from an example in one state but suspect working amateur-CAP liaisons are rare. Note that CAP may handle only CAP business and emergency traffic. The need of such a liaison may be infrequent but critical!

Many CAP squadrons, like many amateur radio clubs, seem to be secret organizations. They certainly can be awfully difficult for the noninitiated to find. Generally neither is listed in the phone book. Trying to make contact with an organization you know is there but cannot find severely hampers establishing a working arrangement! Locally, the Office of Emergency Management or the local airport operator may be able to provide a CAP contact. Failing here, the box on this page lists the Civil Air Patrol state or "Wing" headquarters offices for the **Journal** area. Or, pick up the mic and ask on the ham bands. Three dead giveaways will help you spot the ham licensed CAPer on the amateur bands: (1) he or she will talk about CAP on the air—break in and ask, (2) he or she will mention going to one of the CAP frequencies, or (3) he or she'll confuse the calls and the CAP tactical call will come out on the ham bands! A gettogether with the local CAP folks should produce some interesting mutual benefits.

CAP Wing Headquarters in the CVRA/SERA area

Headquarters, Deleware Wing CAP
P O Box J
Camden DE 19934

Headquarters Georgia Wing CAP
Building 802
Dobbins AFB GA 30069

Headquarters Kentucky Wing CAP
P O Box 20271
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Headquarters Maryland Wing CAP
Building 968
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Headquarters North Carolina Wing CAP
6224 Wilkinson Blvd
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Headquarters South Carolina Wing CAP
P O Box 5991
Columbia SC 29250

Headquarters Tennessee Wing CAP
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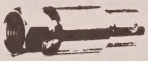
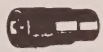
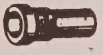
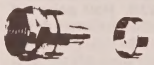
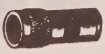
UHF—BNC **UG-273 $2.95**	BNC Male to F Female **RF-101 $3.25**	 F—BNC **RF-102 $3.25**	UHF—Miniature **RF-103 $1.75**	UHF—RCA **RF-104 $1.75**	 UHF Male **PL-259 $.75**
 Adapter PL-259—RG-58 **UG-175 $.25**	Adapter PL-259—RG-59 **UG-176 $.25**	UHF Female **SO-239 $.65**	UHF Female Single Hole Mount **CH-239 $.65**	 F Male for RG-59 **RF-105 $.25**	F Female Chassis **RF-106 $.50**
Double Female Type F **RF-107 $.50**	 N Male For RG 58 **UG-536 $3.50**	N Male 90° For RG-58 **RF-108 $3.50**			

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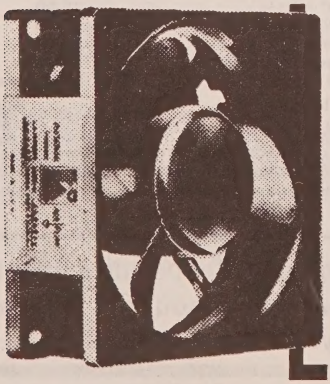

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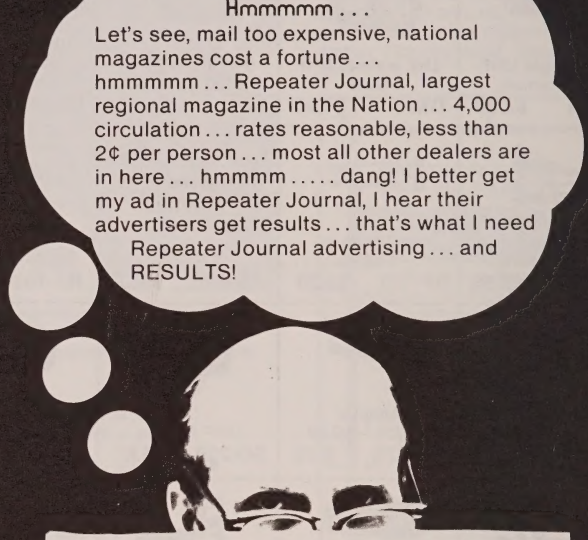
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The Micros Are Coming on Strong

—By Ted Wolfe, WD4KHL

A growing number of radio amateurs in Southern West Virginia have their eyes glued to a CRT. no, it isn't that they're watching regular TV fare. Instead, they're scanning the tube readout from their microcomputers.

Many have taken the spare TV set in the house and turned it into a monitor, or computer readout device. Some have even purchased new color sets to better view the color graphics capability of their new playthings.

Amateur interest in mating ham gear to microcomputers got a big boost in the fall of 1982 when several microcomputer manufacturers introduced substantial price cuts for their products.

Many hams purchased the Commodore Vic 20. The price of that unit fell from around $300 to less than $200. For about fifty dollars more the hams buy a "Hamsoft" Morse Code/Radioteletype (both Murray/Baudot and ASCII) program from Kantronics, which comes as a plug in "firmware" module for the Vic 20.

The addition of a Terminal Unit (TU) — really a modulator/demodulator— priced from around $170 to several hundred dollars, depending on one's taste and pocketbook, and you're ready to hook up your transceiver and a TV monitor and work computer assisted CW and RTTY.

I began keeping a record in November and have since learned of two dozen hams in our part of the state who have Vic 20's. Plus, there are quite a few others with other brand computers.

With so many new microcomputers around, the hams found a need for more information to get the greatest benefit from their machines. So, they organized informal classes on BASIC computer language and elementary programing which began in November. It's held Monday evenings at 7:00 at the Hansford Community Center, Washington Street and Washington Avenue, in St. Albans. Tom Miller, WB8ICT, is the instructor.

A ham's family can also get hooked on the micros, which can do other things besides giving an assist to amateur radio. When Denver Stricker, N8ELD, Belle, brought his new Vic 20 home from the store with a joystick and package of game programs, his wife and children commandeered the unit. Denver didn't get to play with his new toy until late that night.

But on the plus side for Denver was the decision of his wife to immediately go out and buy the accessory tape recorder for his unit.

Bill Hunter, K8BS, Charleston, says he's going to buy a second microcomputer. His children are giving the one he has a workout with games and schoolwork. He says a second one will allow him to have fulltime use of one in the shack without having to share it with the family.

O. D. Walker, WD8BRD, Belle, has his primarily for Military Affiliate Radio Station (MARS) operation, handling traffic for Navy MARS.

As those already into computers talk about them on 2-meters and the low bands, interest is generated in those listening in.

If the situation here is our corner of West Virginia is duplicated at the same rate in the other CVRA/SERA states, then 1983 is going to be the year that RTTY really takes off.

See "The Coming Shakeout in Personal Computers," Page 72, **Business Week** for Nov. 22, 1982, and "Taking the Leap: How to Shop for a Home Computer," Page 86, **Business Week** for Dec. 20, 1982.

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WEST VIRGINIA NOTES

By: Ted Wolfe, WD4KHL

Every licensed radio amateur in the Mountain State, by virtue of holding that license, is considered a member of the West Virginia State Amateur Radio Council.

That might come as news to some amateurs who may not know much about the organization. All hams are welcome to attend the Council's quarterly meetings which have all recently been held at the state 4-H camp at Jackson's Mill, the same place where the state ARRL convention and hamfest is held every July.

Arranging and sponsoring that convention is the primary function of the Council. But it does have others—including sponsoring and/or administering the West Virginia Amateur of the Year award, the West Virginia state QSO Party, and the annual Field Day award competition.

The Council's quarterly meetings are held on Saturdays and business usually takes several hours. Most of the Council's day-to-day business is handled by the committees which are appointed to supervise the particular events enumerated above.

Council officers serve two year terms. They are elected at the fall meeting every other year. Election of officers falls in the odd numbered years. The next election of officers will come in the fall of 1983.

The current officers of the Council are: Mike Palmer, K8LG, Morgantown, who moved up to the post of President during 1982 to succeed Bill James, WA8GYU, Cassville, who resigned; Ed Sutton, WA8FLF, Charleston, Treasurer; and Rose Victor, K8YL, Shinnston, Secretary.

The Council's Executive Committee met late in 1982 to fill the vacancy in the Vice President's post, created when Palmer moved up. The committee elected Bill Pace, KB8ZM, Charleston, to the post of Vice President.

The Council's first quarterly meeting of 1983 was scheduled for Saturday, January 15. Attendanced has varied greatly at past quarterly meetings. All West Virginia hams should be aware that they are welcome and their input is sought run the affairs of the West Virginia State Amateur Radio Council.

• • •

ARRL President Vic Clark, W4KFC, Clifton, Va., was scheduled as the guest speaker for the installation of officers banquet of the Kanawha Amateur Radio Club (KARC) of Charleston on Saturday, Jan. 8th. The banquet was scheduled for the Wren's Nest restaurant in St. Albans.

Officers to be installed at that time were: President, Bill Miller, KB8QX; Vice-President, Don Craig, KA8KVD; Treasurer, Roosevelt Wilder, K8RWF, re-elected; Secretary, Terry Sanner, WD4ALW; and Program Chairman, Jim David, KU8R.

The Charleston hams invited all interested amateurs in the region to the banquet to hear Clark.

• • •

New officers of the Plateau Amateur Radio Club (PARC) at Fayetteville who assumed office on January 1, were: Dewey "Buzz" Collins, K8CFT, President; John Whitt, W8OQC, Vice-President; Harry Price, WD8RNB, Secretary; and Don Newell, KA8DMJ, Treasurer. All but Whitt are from Oak Hill. Whitt lives in Fayetteville.

The PARC sponsored Faytteville, WV, hamfest was scheduled for Sunday, February 13.

• • •

To correct a typing error in my column last issue, Billy McAlister's new WB8OEC repeater on Coal Mountain, West of St. Albans, is on 147.750/150 Mhz. It is now operational. I've also faintly heard from my QTH the new repeater on 144.51/145.11 at Salt Rock, Cabell County. The Kanawha-Fayette-Clay ARA activated its new 223.14/224.74 repeater on Lick Knob on Nov. 11. It operates with the same call (W8FG/R) as the club's 144.87/145.47 two-meter repeater at the same location.

• • •

A planning meeting was held Saturday, Dec. 11, at the Charleston House Holiday Inn for the 1983 national convention of the County Hunter's organization. They'll be in West Virginia's capital city, Charleston, July 7-10. I had hoped to be able to report more on the convention in this issue but guess now we'll have to cover it in the May issue of the **Journal.** Send me details, fellas!

• • •

In late December the RTTY interest group in the lower Kanawha Valley was about ready to activate its new 147.96/36 Mhz repeater to be dedicated to RTTY usage. It reportedly will operate with Joe Anderson's Call, K8BCH. Joe's been into computer RTTY now for several years.

Owners of several repeaters in the region have approved RTTY over their machines. They are the WB8OEC, 147.750/150 repeater on Coal Mountain; the WR8AER, 146.22/82 repeater in Charleston; and the WD8KWC, 144.63/145.23 machine on Blair Mountain in Logan County. Those are in addition to the K8BCH machine when it comes on line.

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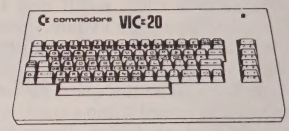

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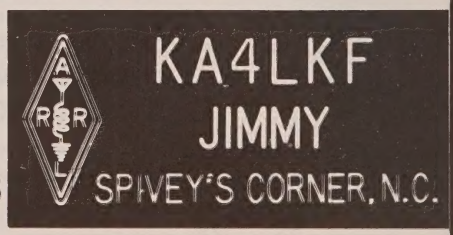

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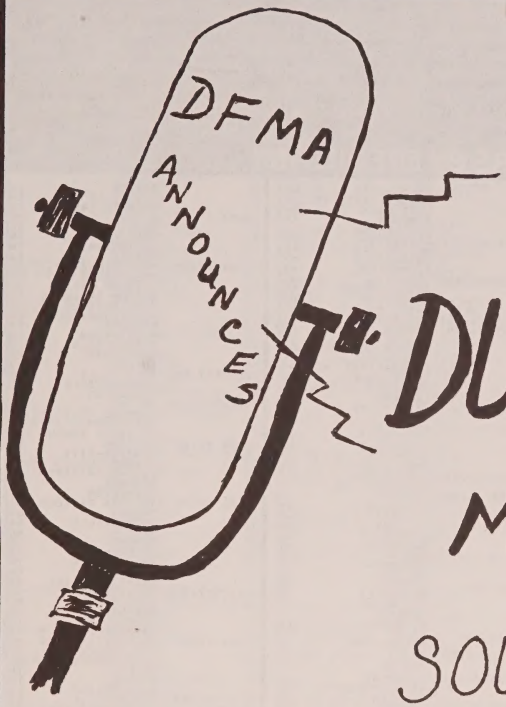

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6.265/6.865	GREENSBORO	NC
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6.28 /6.88	MAYTOWN	EKY
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	MARIETTA	GA
	OUTMAN	GA
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	SHELBY	NC
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	BRISTOL	VA
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6.295/6.895	MADISON	NC
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6.31 /6.91	MOREHEAD	EKY
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	FARMVILLE	VA
	JONESVILLE	VA
	MT. LK/BALD KNB	VA
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6.325/6.925	ROCK HILL	SC
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6.34 /6.94	ASHLAND	EKY
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	ROANOKE	VA
	BECKLEY	WV
	NEW MARTINSVLLE	WV
	RICHWOOD	WV
	WEIRTON	WV
6.355/6.955	ROCKINGHAM	NC
6.37 /6.97	ATLANTA	GA
	SAVANNAH*	GA
	KINGS MTN	NC
	MT AIRY	NC
	SMITHFIELD	NC
	ANDERSON/LOCAL	SC
	FLORENCE	SC
	ALTAMONT	TN
	KNOXSPT/BAYS MT	TN
	MEDINA	TN
	OAK RIDGE	TN
	MANASSAS	VA
	VIRGINIA BEACH	VA
	LOGAN	WV
	PARKERSBURG	WV
6.385/6.985	PRESTON	GA
	ALBEMARLE	NC
	DILLSBORO	NC
	ROANOKE/POOR MT	VA
6.40 /7.00	ATLANTA	GA
	LAGRANGE	GA
	SANDY SPRINGS	GA
	HIGH POINT	NC
	JACKSONVILLE	NC
	MARION	SC
	PICKENS	SC
	MEMPHIS	TN
	SUFFOLK	VA
	ST ALBANS	WV
7.60 /7.00	ELKHORN CITY	EKY
	HIGH POINT	NC
	BLOUNTVILLE	TN
	CHATTANOOGA	TN
	CLARKSVILLE	TN
	HAYSI	VA
	TERRA ALTA	WV
6.415/7.015	BLUEFIELD	VA
7.615/7.015	CHARLOTTE	NC
	SUMTER	SC
	NASHVILLE	TN
	FREDRICKSBURG	VA
6.43 /7.03	ERWIN	NC
	ROCK HILL	SC
	FRAYSER	TN
	LEXINGTON	TN
	DEWITT	WV
7.63 /7.03	PANTSVILLE	EKY
	GREENSBORO	NC
	ROANOKE RAPIDS	NC
	MYRTLE BEACH, N	SC
	FAYETTEVILLE	TN
	HENDERSONVILLE	TN
	MEMPHIS	TN
	MORRISTOWN	TN
	SPRINGFIELD	TN
	WAYNESBORO	VA
	MULLENS	WV
6.445/7.045	HOPE MILLS	NC
	ROBBINSVILLE	NC
	ARLINGTON	VA
7.645/7.045	METTER	GA
	RADFORD	VA
	STAUNTON	VA
	VIRGINIA BEACH	VA
6.06 /7.06	MADISON	WV
6.46 /7.06	COMUTA-RTTY	GA
	CHARLOTTE	NC
	ELIZABETH CITY	NC
	MEMPHIS	TN
	PRESTON	WV
7.66 /7.06	ATLANTA GA TECH	GA
	MACON	GA
	THOMASVILLE	GA
	MACO	NC
	SUMTER	SC
	GREENEVILLE	TN
	SHERWYVILLE	TN
	RICHMOND	VA
	POINT PLEASANT	WV
6.475/7.075	BURLINGTON	NC
7.675/7.075	BURLINGTON	NC
	GREENVILLE	SC
	KNOXVILLE	TN
	WAYNSBR/AFTON MT	VA
7.69 /7.09	GREENVL/ESTN NC	NC
	ORANGEBURG	SC
	SPARTANBURG	SC
	MEMPHIS	TN
	SPARTA	TN
	GALAX/BRIRP MT	VA
7.70 /7.10	BLAIRSVILLE	GA
7.705/7.105	MARION/OLD FORT	NC
	MONROE	NC
	NASHVILLE	TN
	BEDFORD	VA
	BRIDGEPORT	WV
6.09 /7.11	LOGAN	WV
7.72 /7.12	AUGUSTA*	GA
	CEDARTOWN	GA
	GAST/SPCR MT	NC
	ROCKY MOUNT	NC
	MYRTLE BEACH	SC
	COLUMBIA	TN
	MEMPHIS	TN
	OAK RIDGE	TN
	CULPEPPER	VA
	BRIDGEPORT	WV
	DUNBAR	WV
7.735/7.135	BREVARD	NC
	CHERAW	SC
	GALAX	VA
7.75 /7.15	CUMMING	GA
	MORGANTON	NC
	RALEIGH	NC
	MONCKS CORNER	SC
	SIMPSONVILLE	SC
	MEMPHIS	TN
	NASHVILLE	TN
	OAK RIDGE	TN
	TAZEWELL	VA
	MCMECHEN	WV
7.765/7.165	HIGH POINT	NC
	GREENWOOD	SC
	HOHENWALD	TN
	NEWPORT NEWS	VA
	WARRENTON	VA
7.78 /7.18	AUGUSTA*	GA
	BALDWIN	GA
	MT AIRY	NC
	SANFORD	NC
	CAROWINDS	SC
	GOOSE CREEK	SC
	CLEVELAND	TN
	MEMPHIS	TN
	NASHVILLE	TN
	DUBLIN	VA
	PETERSBURG	VA
	LEON	WV
7.795/7.195	ATLANTA	GA
	LAKE TOXAWAY	NC
	LYNCHBURG	VA
7.81 /7.21	CONYERS	GA
	STATESBORO	GA
	WEST BROW	GA
	GREENSBORO	NC
	WHITEVILLE	NC
	COLUMBIA	SC
	COOKEVILLE	TN
	JACKSON	TN
	MCLEAN	VA
	WISE/HIGH KNOB	VA
7.825/7.225	HILLSBOROUGH	NC
	MORRISTOWN	TN
7.84 /7.24	ASHLAND	EKY
	IRWINTON	GA
	CARTHAGE	NC
	EDEN	NC
	FOREST CITY	NC
	FRANKLIN	NC
	LANCASTER	SC
	PROSPERITY	SC
	GALLATIN	TN
	MEMPHIS	TN
	PETERSBURG	VA
	WOODBRIDGE	VA
7.855/7.255	ATLANTA	GA
	ASHEBORO	NC
	MARION	NC
	DONELSON	TN

	PARKSLEY	VA
	MARTINSBURG	WV
7.87 /7.27	AMERICUS	GA
	BUFORD	GA
	BENSON	NC
	WAYNESVILLE	NC
	CHARLESTON	SC
	LONG MT	SC
	GALLATIN	TN
	JOHNSON CITY	TN
	MEMPHIS	TN
	GUM SPRING	VA
	SCOTT DEPOT	WV
7.885/7.285	AIKEN	SC
	ROCKY SPUR	SC
7.985/7.285	MARTINSVILLE	VA
7.90 /7.30	SVR CRK/MT ALTO	GA
	WARNER ROBBINS	GA
	JACKSONVILLE	NC
	TUCKASEGEE	NC
	KNOXVILLE	TN
	MEMPHIS	TN
	NASHVILLE	TN
	BERRYVILLE	VA
	CLIFTON FORGE	VA
	FRANKLIN	VA
	HUNTINGTON	WV
6.915/7.315	HENDERSONVILLE	TN
7.915/7.315	UNION CROSS	NC
	CENTERVILLE	TN
	ALEXANDRIA	VA
7.92 /7.32	GRUNDY	VA
7.93 /7.33	LAGRANGE	GA
	TOCCOA*	GA
	FAYVLLE/FT BRAGG	NC
	LENOIR	NC
	COLUMBIA	SC
	COVINGTON	TN
	CROSSVILLE	TN
	NASHVILLE	TN
	LEXNGTN/COLE MT	VA
	WARSAW	VA
7.94 /7.34	BLACK MOUNTAIN*	EKY
7.945/7.345	SHELBY	NC
	MADISON	TN
	GATE CITY	VA
	FRANKLIN	WV
7.95 /7.35	DANVILLE	VA
7.96 /7.36	DOUGLASVILLE	GA
	DUBLIN	GA
	BOONE	NC
	GREENVILLE	NC
	LUMBERTON	NC
	COLUMBIA	SC
	KNOXVILLE	TN
	MEMPHIS	TN
	NASHVILLE	TN
	PARIS	TN
	CHESTERFIELD	VA
	ST ALBANS	WV
7.975/7.375	BURNSVILLE	NC
	HILLSVILLE	NC
	NASHVILLE	TN
	HILLSVILLE	VA
	LYNCHBURG	VA
	NEWPORT NEWS	VA
	GRAFTON	WV
7.99 /7.39	JENKINS	EKY
	THOMASTON	GA
	EDEN/STONEVILLE	NC
	SMITHFIELD	NC
	DAYTON/RHEA CTY	TN
	JONESBORO	TN
	MEMPHIS	TN
	NASHVILLE	TN
	PETERSBURG	VA
	PARKERSBURG	WV
6.43 /7.43	GRIFFIN	GA
6.00 /7.50	CHARLOTTE	NC
6.19 /7.51	MEMPHIS	TN
7.015/7.615	CLEVELAND	GA
7.075/7.675	BUFORD	GA
7.135/7.735	VALDOSTA	GA
	ALAMO	TN
7.225/7.825	CLOUDLAND	GA
7.285/7.885	ASHBURN	GA
	BIRMINGHAM(ALA)	TN
7.30 /7.90	ROME	GA
	MONROE	NC
7.315/7.915	DALTON*	GA
	FORSYTH	GA
6.085/7.955	MORGANTOWN	WV
7.375/7.975	ATHENS*	GA
	GREENVILLE	SC

220 MHZ

2.22 /3.82	FALLS CHURCH	VA
2.30 /3.90	COLUMBIA	SC
2.32 /3.92	HIGH POINT	NC
2.34 /3.94	ASHVL/MT PISGAH	NC
	HILLSBORDUGH	NC
	CLARKSVILLE	TN
	FAIRFAX	VA
	SUFFOLK	VA
2.34 /3.95	MEMPHIS	TN
2.36 /3.96	ROCKY MOUNT	NC
2.38 /3.98	LINWOOD	NC
	GALLATIN	TN
2.40 /4.00	LOCUST	NC
2.42 /4.02	FAYETTEVILLE	NC
	HICKORY	NC
	NASHVILLE	TN
2.44 /4.04	WINSTON-SALEM	NC
2.46 /4.06	EASLEY/SASFRS MT	SC
	ROBERTSON CO.	TN
2.52 /4.12	SAVANNAH	GA
2.54 /4.14	PICKENS/CSRS HD	SC
	HUNTINGTON	WV
2.64 /4.24	CANTON/CHBRS MT	NC
2.70 /4.30	STATESVILLE	NC
2.74 /4.34	FRIES	VA
2.80 /4.40	CHARLOTTE	NC
2.86 /4.46	KNOXVILLE	TN
2.94 /4.54	MT MITCHELL	NC
3.00 /4.60	ASHEVILLE	NC
3.04 /4.64	RALEIGH	NC
	WINSTON-SALEM	NC
3.06 /4.66	CANTON	GA
3.08 /4.68	CHARLOTTE	NC
3.10 /4.70	WSTFLD/SAUTN MT	NC
3.14 /4.74	KINGSTON/LICK KB	WV
3.16 /4.76	SALISBURY	NC
	DAN/WHT OAK	VA
3.18 /4.78	CHATTANOOGA	TN
3.20 /4.80	MORGANTON	NC
3.22 /4.82	ATLANTA	GA
	GREENSBORO	NC
	ALEXANDRIA	VA
3.28 /4.88	WSTFLD/SAUTN MT	NC
3.30 /4.90	CHATTANOOGA	TN
3.34 /4.94	KENNESAW	GA
	GREENEVILLE	TN
	ROANOKE/POOR MTN	VA
3.36 /4.96	CHERRYVILLE	NC

440 MHZ

9.25 /6.27	ALEXANDRIA	VA
9.25 /7.25	ALBANY	GA
	CHATTANOOGA	TN
7.05 /2.05	MEDINA	TN
7.25 /2.25	COVINGTON	VA
	SOUTH BOSTON	VA
7.75 /2.75	ROANOKE	VA
7.80 /2.80	FRANKLIN	TN
	MEMPHIS	TN
7.90 /2.90	HIGH POINT	NC
8.00 /3.00	WIN-SAL/SAUTN MT	NC
	MEMPHIS	TN
8.30 /3.30	FAYETTEVILLE	NC
8.40 /3.40	MEMPHIS	TN
8.50 /3.50	TYSONS CORNER	VA
8.65 /3.65	MT MITCHELL	NC
8.70 /3.70	LOCUST	NC
8.75 /3.75	ALAMO	TN
	FINCASTLE	VA
9.00 /4.00	ARLINGTON	VA
9.05 /4.05	WAYNSBR/AFTON MT	VA
9.10 /4.10	HILLSBOROUGH	NC
	COLUMBIA	SC
	CHATTANOOGA	TN
9.15 /4.15	LEXNGTN/COLE MT	VA
9.20 /4.20	COLUMBUS	GA
9.25 /4.25	CHARLOTTESVILLE	VA
9.30 /4.30	FISHERVILLE	TN
	KNOXVILLE	TN
	KNOXVILLE	TN
	WAYNESBORO	VA
9.35 /4.35	LYNCHBURG	VA
9.40 /4.40	FAYETTEVILLE	NC
	OAK RIDGE	TN
9.35 /4.45	GALLATIN	TN
9.45 /4.45	LYNWOOD	NC
	GALLATIN	TN
	FALLS CHURCH	VA
9.50 /4.50	KENNESAW	GA
	BRISTOL/HLSTN MT	TN
	MEMPHIS	TN
	LYNCHBURG	VA
	PETERSBURG	VA
9.10 /4.509	CHARLESTON	SC
9.60 /4.60	CHARLOTTE	NC
	KNOXVILLE	TN
	ALEXANDRIA	VA
9.65 /4.65	GREENEVILLE	TN
9.675/4.675	NASHVILLE	TN
9.70 /4.70	KNOXVILLE	TN
	MORGANTOWN	WV
9.775/4.775	NASHVILLE	TN
9.80 /4.80	CANTON/CHBRS MT	NC
	GREENVILLE	NC
	MEMPHIS	TN
	KINGSTON/LICK KB	WV
	MORGANTOWN	WV
9.85 /4.85	CHARLOTTE	NC
	PETERSBURG	VA
9.875/4.875	NASHVILLE	TN
9.90 /4.90	ASHVL/MT PISGAH	NC
	GREENSBORO	NC
9.95 /4.95	BENTON/BEAN MT	TN
	STAUNTON	VA
	VIRGINIA BEACH	VA
9.975/4.975	NASHVILLE	TN
2.25 /7.25	ROCK HILL	SC
2.50 /7.50	ROANOKE/POOR MT	VA
4.225/9.225	MANASSAS	VA
4.25 /9.25	STONE MTN	GA
4.40 /9.40	MEMPHIS	TN
4.50 /9.50	WARNER ROBBINS	GA
4.60 /9.60	BUCKHEAD	GA
	CHARLOTTE	NC
4.75 /9.75	FAIRFAX	VA
4.85 /9.85	ANNANDALE	VA
4.90 /9.90	WOODBRIDGE	VA

10-METERS

9.60 /9.60	CHARLOTTESVILLE	VA
9.52 /9.62	KNOXVILLE	TN
	MEMPHIS	TN
9.56 /9.66	NEWPORT	NC

6-METERS

3.05 /2.05	MARIETTA	GA
2.58 /2.48	FAIRFAX	VA
2.525/2.525	HENDERSONVILLE	NC
	HILLSBORDUGH	NC
2.76 /2.525	KNOXVILLE	TN
3.525/2.525	NORTON	VA
2.01 /3.01	HENDERSONVILLE	NC
	NEWPORT	NC
	CHATTANOOGA	TN
	MEMPHIS	TN
	ABINGTON	VA
	LEXNGTN/COLE MT	VA
	ROCKY/HIGH KB	VA
2.03 /3.03	CHARLOTTE	NC
	ROANOKE RAPIDS	NC
2.07 /3.07	SOUTH BOSTON	VA
2.13 /3.13	ALEXANDRIA	VA
	DANVILLE(DCC)	VA
2.15 /3.15	HIGH POINT	NC
	KNOXVILLE	TN
	LYNCHBURG	VA
2.35 /3.35	CARY	NC
2.47 /3.47	HICKORY	NC
2.64 /3.64	KNOXVILLE	TN
2.67 /3.67	STATESVILLE	NC

NORTH CAROLINA REPEATERS

2-METERS

AHOSKIE	WB4YNF	144.53	145.13	A
AHOSKIE	WA4ZGQ	146.31	146.91	D PA
ALBEMARLE	K4OGB	146.385	146.985	
ANDSN MT/NEWTON	WD4LCF	144.85	145.45	N
ASHEBORO	WD4AIB	147.855	147.255	PAL
ASHEVILLE	WA4QCO	146.235	146.835	A
ASHVL/MT PISGAH	WA4BVW	146.16	146.76	
ASHVL/SPIVEY MT	W4MOE	146.31	146.91	
BENSON	WR4ARL	147.87	147.27	N PA
BODIE ISLAND	KE4PB	146.235	146.835	N C
BOONE	WA4KDB	147.96	147.36	
BREVARD	N4DJB	147.735	147.135	D
BURGAW	K4LZY	146.34	146.94	
BURLINGTON	WR4AKY	146.07	146.67	D
BURLINGTON	W4VGZ	146.475	147.075	N EA
BURLINGTON	WA4HBQ	147.675	147.075	N EA
BURNSVILLE	WA4LLR	147.975	147.375	A
CANTON/CHBRS MT	WB4OKG	144.75	145.35	
CARTHAGE	W4NIW	147.84	147.24	D EA
CHARLOTTE	KE4ZC	144.57	145.17	
CHARLOTTE	W4BFB	144.63	145.23	
CHARLOTTE	WD4JWO	144.69	145.29	D
CHARLOTTE	WB4HTR	144.75	145.35	N
CHARLOTTE	KA4HNP	145.00	147.50	D
CHARLOTTE	W4BFB	146.175	146.775	R
CHARLOTTE	WR4AEU	146.34	146.94	A
CHARLOTTE	WR4ALO	146.46	147.06	N A
CHARLOTTE	WB4KPF	147.615	147.015	PA
CHRYVL/BKRS MT	WB4UDS	144.55	145.15	
CONCORD/KANNAP.	K4CEB	146.055	146.655	A
DILLSBORO	WB4NSS	146.385	146.985	
DUNN	WB4FXM	146.10	146.70	PA
DURHAM	WA4WTX	146.22	146.82	
DURHAM	WA4BFT	146.34	146.94	N A
EDEN	WA4ACP	147.84	147.24	N
EDEN/STONEVILLE	WA4QBG	147.99	147.39	
ELIZABETH CITY	WA4VTX	146.46	147.06	N A
ELIZABETHTOWN	N4DHW	146.175	146.775	N
ERWIN	WR4ALY	146.43	147.03	N
FAYETTEVILLE	N4NG	144.83	145.43	N C
FAYETTEVILLE	N4EWG	146.205	146.805	
FAYETTEVILLE	WR4ANN	146.31	146.91	
FAYVLLE/FT BRAGG	W4LPL	147.93	147.33	
FOREST CITY	W4TMT	146.07	146.67	N A
FOREST CITY	WA4BKU	147.84	147.24	N
FRANKLIN	WB4YAO	147.84	147.24	D
FRNKLN/COWEE BLD	N4AC	144.89	145.49	
GAST/SPCR MT	W4REW	147.72	147.12	A
GASTONIA	K4ZFD	146.205	146.805	N L
GOLDSBORO	K4CYP	146.25	146.85	A
GREENSBORO	N4AZM	144.65	145.25	A
GREENSBORO	K4SNI	146.01	146.61	A
GREENSBORO	WA4MSS	146.16	146.76	
GREENSBORO	WR4AUA	146.265	146.865	N
GREENSBORO	WD4IPZ	147.63	147.03	D PA
GREENSBORO	WR4ANL	147.81	147.21	N
GREENVILLE	WA4DAN	144.75	145.35	
GREENVILLE	W4AMC	147.96	147.36	
GREENVL/ESTN NC	W4GDF	147.69	147.09	
GRIFTON	W4NBR	146.085	146.685	
HENDERSONVILLE	WB4YAO	146.04	146.64	D L
HENDSVL/PINCK MT	WA4KNI	144.67	145.27	
HICKORY/BRT. MT	WR4ACM	146.25	146.85	N
HIGH POINT	N4XO	144.51	145.11	N C
HIGH POINT	K4AZA	146.40	147.00	LPA
HIGH POINT	K4AZA	147.60	147.00	LPA
HIGH POINT	KA4DHP	147.765	147.165	PA
HILLSBORDUGH	WA4WTX	147.825	147.225	A
HILLSVILLE	WD4BTS	147.975	147.375	N A
HOPE MILLS	WB4TRW	146.445	147.045	N
JACKSONVILLE	WD4FVO	146.40	147.00	PA
JACKSONVILLE	WR4ATW	147.90	147.30	N
KINGS MTN	WB4GXY	146.37	146.97	N
LAKE TOXAWAY	WR4AGH	147.795	147.195	N
LAURINBURG	K4QWK	146.025	146.625	A
LENOIR	KN4K	147.93	147.33	
LEVEL CROSS/GBO	K4VUW	146.19	146.79	
LEWISVILLE	N4GGK	144.61	145.21	
LEXINGTON	K4IZM	146.31	146.91	PA
LILLINGTON	WA4FKI	144.87	145.47	N
LINCOLNTON	WD4PLY	144.85	145.45	N
LUMBERTON	WB4MDI	147.96	147.36	
MACO	WA4LED	147.66	147.06	D
MADISON	KA4YFF	146.295	146.895	R
MANTEO	W4PCN	146.34	146.94	D PA
MARION	WB4UCF	147.855	147.255	N P

CVRA REPEATER SYMBOLS

Unmarked in First Code column-Full CVRA Members

N	NON Member CVRA	RB	Remote Base System
D	Delinquent Member	T	Tone Access Repeater
M	T-MARC Repeater	L	Linked Repeater
A	Open Autopatch	R	Radioteletype Rptr.
PA	Private Autopatch	V	Television (SS or ATV)
EA	Emerg. Autopatch	P	Proposed Repeater
		C	Under Construction
		O	Off Air Temporarily

MARION/OLD FORT	KA4DEC	147.705	147.105		
MAYODAN	N4GWZ	144.55	145.15	N	C
MONROE	K4BGU	147.30	147.90	N	
MONROE	K4JCK	147.705	147.105	D	A
MORGANTON	K4RP	147.75	147.15		
MT AIRY	WA4ZAS	146.37	146.97		EA
MT AIRY	WA4CQK	147.78	147.18	N	
MT AIRY/FANCY GP	WD4MDP	144.73	145.33		
MT MITCHELL	WA4BVW	144.59	145.19		
N. WILKESBORO	K4ITL	144.77	145.37		L
NEW BERN	WD4JMS	146.01	146.61	D	A
NEWPORT	K4GRW	144.85	145.45	D	A
NEWTON	N4AWV	144.83	145.43	N	P
OXFORD	WA4JCS	144.57	145.17		A
RALEIGH	N4BEA	144.67	145.27		PA
RALEIGH	N4CBI	144.89	145.49		PA
RALEIGH	W4DW	146.04	146.64		A
RALEIGH	K4BWC	146.13	146.73		A
RALEIGH	K4ITL	146.28	146.88		
RALEIGH	K4ITL	147.75	147.15		PA
REIDSVILLE	K4YFT	146.25	146.85	D	
ROANOKE RAPIDS	K4PUV	147.63	147.03		
ROARING GAP	WB4PZA	146.22	146.82		
ROBBINSVILLE	WB4ZQB	146.445	147.045	N	L
ROCKINGHAM	WA4ULA	146.355	146.955	D	
ROCKY MOUNT	WB4WAA	147.72	147.12		A
SALISBURY	W4EXU	146.13	146.73		
SANFORD	WB4EJJ	147.78	147.18		A
SHELBY	WD4DJA	146.28	146.88		
SHELBY	WD4DJA	147.945	147.345		A
SMITHFIELD	KD4JQ	146.37	146.97		A
SMITHFIELD	W4MKL	147.99	147.39		PA
SPRING LAKE	WR4BCA	146.115	146.715	N	
STATESVILLE	AI4O	146.085	146.685		PA
TUCKASEGEE	W8OMV	147.90	147.30	N	
UNION CROSS	WA4RBW	147.915	147.315		
WADESBORO	W4USH	146.235	146.835	N	
WASHINGTON	WB4GMI	146.205	146.805	N	
WAXHAW	WB4ODA	146.295	146.895	N	C
WAYNESVILLE	N4SM	147.87	147.27		PA
WHITEVILLE	K4MSD	147.81	147.21	N	C
WILLIAMSTON	KA4KNU	144.81	145.41		
WILMINGTON	N4WT	146.13	146.73		PA
WILMINGTON	WB4UNG	146.22	146.82		O
WIN-SAL/SAUTN MT	WB4KQN	144.79	145.39		L
WINSTON-SALEM	W4HKB	144.87	145.47	N	P
WINSTON-SALEM	WA4GIC	146.04	146.64		A

220 MHZ

ASHEVILLE	NC4N	223.00	224.60		
ASHVL/MT PISGAH	WA4BVW	222.34	223.94		
CANTON/CHBRS MT	WB4OKG	222.64	224.24		C
CHARLOTTE	KE4ZC	222.80	224.40		
CHARLOTTE	WB4KPF	223.08	224.68		LA
CHERRYVILLE	WB4UDS	223.36	224.96		
FAYETTEVILLE	W4EHF	222.42	224.02		
GREENSBORO	KZ4O	223.22	224.82		RL
HICKORY	WR4ACM	222.42	224.02	N	
HIGH POINT	K4AZA	222.32	223.92	LP	A
HILLSBOROUGH	WA4WTX	222.34	223.94		L
LINWOOD	KA4HUV	222.38	223.98	N	
LOCUST	WA4ZIA	222.40	224.00		
MORGANTON	WB4PML	223.20	224.80		
MT MITCHELL	WA4BVW	222.94	224.54		
RALEIGH	WA4PEN	223.04	224.64	N	
ROCKY MOUNT	KA4DAP	222.36	223.96	N	
SALISBURY	W4EXU	223.16	224.76		
STATESVILLE	WA4PVI	222.70	224.30	N	
WINSTON-SALEM	WB4UGW	222.44	224.04	N	C
WINSTON-SALEM	WA4YHH	223.04	224.64	N	
WSTFLD/SAUTN MT	W4RXG	223.10	224.70		R
WSTFLD/SAUTN MT	W4RXG	223.28	224.88		

440 MHZ

ASHVL/MT PISGAH	WA4COS	449.90	444.90	N	
CANTON/CHBRS MT	WB4OKG	449.80	444.80		C
CHARLOTTE	W4BFB	444.60	449.60		P
CHARLOTTE	WR4AEU	449.60	444.60		P
CHARLOTTE	WR4ALO	449.85	444.85	N	
FAYETTEVILLE	N4NG	448.30	443.30	N	C
FAYETTEVILLE	KB4ZW	449.40	444.40	N	C
GREENSBORO	WB4HZI	449.90	444.90	N	
GREENVILLE	AI4J	449.80	444.80	N	C
HIGH POINT	K4AZA	447.90	442.90		L
HILLSBOROUGH	WA4WTX	449.10	444.10		
LOCUST	WA4LBT	448.70	443.70		
LYNWOOD	KA4HEV	449.45	444.45	N	P
MT MITCHELL	WA4BVW	448.65	443.65		C
WIN-SAL/SAUTN MT	WB4KQN	448.00	443.00		LC

6-METERS

CARY	WR4AVP	52.35	53.35	N	
CHARLOTTE	KE4ZC	52.03	53.03		
HENDERSONVILLE	WB4YAO	52.01	53.01	D	
HENDERSONVILLE	WB4YAO	52.525	52.525	D	RB
HICKORY	WR4ACM	52.47	53.47	N	
HIGH POINT	K4AZA	52.15	53.15		L
HILLSBOROUGH	WA4WTX	52.525	52.525	D	RB
NEWPORT	K4GRW	52.01	53.01	D	P
ROANOKE RAPIDS	K4PUV	52.03	53.03		C
STATESVILLE	WA4WRS	52.67	53.67	N	

10-METERS

NEWPORT	K4GRW	29.56	29.66	D	P

TENNESSEE REPEATERS

2-METERS

ALAMO	WB4EDS	147.135	147.735		
ALTAMONT	WR4AWN	146.37	146.97	N	
ATHENS	WB4GRC	144.71	145.31	N	
BENTON	K4SIR	144.85	145.45	N	
BIRMINGHAM(ALA)	WD4BXA	147.285	147.885		A
BLOUNTVILLE	WB4RAV	144.71	145.31	N	C
BLOUNTVILLE	WA4KMG	147.60	147.00		PA
BRISTOL	K4ILW	146.07	146.67	D	A
BRISTOL	WD4CYZ	146.28	146.88		
BRISTOL/HLSTN MT	WR4ADO	146.16	146.76	D	
BROWNSVILLE	WA4ABU	146.655	146.055		PA
CENTERVILLE	WB4PZB	147.915	147.315	N	
CHATTANOOGA	K4CMY	144.53	145.13	D	
CHATTANOOGA	KB4TZ	144.79	145.39		A
CHATTANOOGA	K4CMY	146.01	146.61		
CHATTANOOGA	AD4F	146.10	146.70	N	
CHATTANOOGA	W4DSK	146.19	146.79		A
CHATTANOOGA	WA4ZOK	147.60	147.00		PA
CLARKSVILLE	WA4TEQ	147.60	147.00	N	
CLEVELAND	WR4AQV	147.78	147.18	N	
COLUMBIA	WR4AIX	147.72	147.12	N	
COOKEVILLE	WA4UCE	146.07	146.67	N	A
COOKEVILLE	N4WS	147.81	147.21		
COVINGTON	WA4VXW	147.93	147.33	N	
CROSSVILLE	KE4RX	146.04	146.64	N	
CROSSVILLE	W4CV	147.93	147.33	N	
DAYTON/RHEA CTY	K4ZLA	147.99	147.39	N	
DECATUR-PONE KB	W4RJC	144.55	145.15		
DONELSON	WB0NOO	147.855	147.255	N	
DYERSBURG	AA4HF	146.145	146.745	N	
FAYETTEVILLE	KO4G	146.265	146.865	N	
FAYETTEVILLE	W4NIQ	147.63	147.03	N	
FISHERVILLE	N4DRL	144.65	145.25	N	A
FRAYSER	W4UFT	146.10	146.70	N	
FRAYSER	W4ZJM	146.43	147.03	N	
GALLATIN	KA4LUG	147.84	147.24		PA
GALLATIN	WA4YQC	147.87	147.27		
GREENEVILLE	N4TV	144.65	145.25		
GREENEVILLE	WB4TUO	144.81	145.41	N	
GREENEVILLE	WA4LYF	147.66	147.06		A
GTLBG/COVE MTN	WA4KJH	146.25	146.85		
HENDERSONVILLE	WB4ZCK	146.915	147.315	N	RB
HENDERSONVILLE	N4WF	147.63	147.03	N	
HERMITAGE	WB4RAB	144.61	145.21		C
HOHENWALD	WB4LHV	147.765	147.165	N	
HORNBEAK	WA4OXK	146.865	146.265	N	
JACKSON	W4WKZ	147.81	147.21	N	
JASPER	KA4LGN	144.59	145.19	N	
JOHNSON CITY	WB4IKB	146.19	146.79		L
JOHNSON CITY	KE4FH	147.87	147.27		A
JONESBORO	WB4SQC	147.99	147.39	D	PA
KNGSPT/BAYS MT	W4TRC	146.37	146.97	D	A
KNOXVILLE	WB4JSD	144.51	145.11	D	R
KNOXVILLE	K4KFD	144.61	145.21	N	A
KNOXVILLE	WA4TEM	144.73	145.33		A
KNOXVILLE	WA4GZE	144.77	145.37		
KNOXVILLE	WB4GBI	144.83	145.43		
KNOXVILLE	WB4GBI	144.83	145.43		
KNOXVILLE	WB4GBI	144.87	145.47		
KNOXVILLE	WB4IOB	146.13	146.73		
KNOXVILLE	K4HXD	146.34	146.94		
KNOXVILLE	K4HXD	147.675	147.075		A
KNOXVILLE	W4BBB	147.90	147.30		EA
KNOXVILLE	WB4HAP	147.96	147.36		
LAFOLLETTE/WLT	W4TZG	146.07	146.67		
LAKE CITY	WB4OAH	146.22	146.82	N	
LEBANON	WR4BBM	146.13	146.73	N	
LEXINGTON	WB4LGH	146.43	147.03	N	
LOUDON CTY.	KE4SK	144.57	145.17	D	
MADISON	WB4NTM	146.04	146.64	N	
MADISON	W4KFK	147.945	147.345	N	
MANCHESTER	W4FOT	146.10	146.70	D	A
MARTIN	WA4ZQX	146.625	146.025		
MCMINVL/SHT MT	W4KKO	144.89	145.49		
MEDINA	K4BEZ	146.37	146.97		A
MEMPHIS	WA4VIP	144.81	145.41	N	
MEMPHIS	WA4KOG	144.89	145.49	D	
MEMPHIS	WB4MQD	145.33	PKET	N	
MEMPHIS	W4GYS	146.04	146.64	N	
MEMPHIS	WR4AOG	146.10	146.70	N	R
MEMPHIS	KA4JXT	146.13	146.73	N	
MEMPHIS	WR4ABS	146.19	147.51	N	
MEMPHIS	W4BS	146.22	146.82	N	
MEMPHIS	WA4KOG	146.25	146.85	D	A
MEMPHIS	WA4ETE	146.28	146.88	N	A
MEMPHIS	K4BN	146.34	146.94	N	A
MEMPHIS	K4FZJ	146.40	147.00	N	
MEMPHIS	WA4MOQ	146.46	147.06	N	
MEMPHIS	W4ZJM	147.63	147.03	N	L
MEMPHIS	WR4AWT	147.69	147.09	N	
MEMPHIS	WB4DAZ	147.72	147.12	N	AT
MEMPHIS	WA5KUB	147.75	147.15	N	
MEMPHIS	WA4KOG	147.78	147.18	D	
MEMPHIS	WD4APK	147.84	147.24	D	

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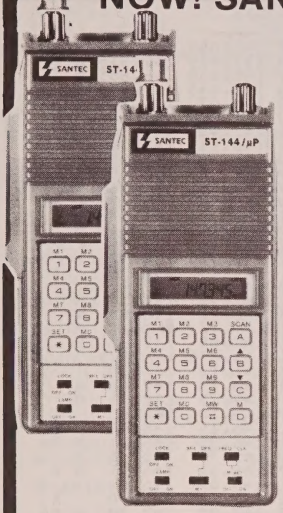

You've got to get a Santec to get it right!

Compare Santec to anything you like, and you'll see — you've got to get a Santec to get: ■ memory channels which store standard repeater offsets for instant recall ■ less than 10 ma drain in receive to conserve power while you're monitoring ■ extremely wide power options of 0.1 W, 1.0 W or even 3.5 W for varying conditions ■ an accurate 24 hour clock for instant reference ■ and a full two year extended service plan which no one else will match.

When you get a Santec, you also get: ■ the widest frequency range of any handheld ■ odd offsets other than ± 600 kHz ■ variable step sizes in bandscan ■ a 500 ma battery with charger ■ a full six digit back-lighted LCD display for full frequency readout plus the memory channel number ■ the easiest keyboard entry of any handheld ■ eight modes of scan, search, manual control and open scan ■ the ability to change batteries without losing memory data ■ easily programmable bandscan ■ a frequency lock switch on the keyboard ■ an automatic low battery indicator ■ and much more.

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ST-440
For 440 mhz

ST-220
For 220 mhz

THEY ALL HAVE THE SAME FABULOUS FEATURES

The fantastic ST-144-up is now joined by the ST-440-up to give you complete capability on the FM 440 mhz. band, and the new, soon to come ST-220-up which covers your 220 mhz. band with the same ease and style as the reliable ST-144.

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MEMPHIS	WR4AZC	147.87	147.27	N	
MEMPHIS	WA4ADT	147.90	147.30	N	
MEMPHIS	W4MMI	147.96	147.36	N	
MEMPHIS	WR4ASR	147.99	147.39	N	
MIDDLEBRO(KY/TN)	W4PPM	144.63	145.23	N	
MORRISTOWN	WD4RTT	147.63	147.03		
MORRISTOWN	WB4OAH	147.825	147.225	N	
MOUNTAIN CITY	WD4OMO	144.87	145.47	N	
MURFREESBORO	WB4LHO	144.57	145.17	N	
NASHVILLE	N4AJS	144.65	145.25		PA
NASHVILLE	WB4FQW	144.73	145.33	N	
NASHVILLE	WB4ZSA	144.83	145.43		
NASHVILLE	N4ARK	144.87	145.47	N	
NASHVILLE	WA4PCD	146.01	146.61	N	
NASHVILLE	WB4NTM	146.07	146.67	N	
NASHVILLE	WB4OES	146.16	146.76	N	
NASHVILLE	WR4AFA	146.19	146.79	D	
NASHVILLE	WA4PCD	146.25	146.85	N	
NASHVILLE	WB4OES	146.28	146.88	N	
NASHVILLE	WA4PCD	146.34	146.94	N	
NASHVILLE	AF4K	147.615	147.015	N	
NASHVILLE	N4WF	147.705	147.105	N	
NASHVILLE	WB4JVP	147.75	147.15	N	
NASHVILLE	WA4PCD	147.78	147.18	N	
NASHVILLE	WB4ZSA	147.90	147.30		PA
NASHVILLE	N4AJS	147.93	147.33		PA
NASHVILLE	WB4NTM	147.96	147.36	N	
NASHVILLE	WB4JTN	147.975	147.375	N	
NASHVILLE	WB4DLQ	147.99	147.39	N	
OAK RIDGE	W4SKH	146.28	146.88		
OAK RIDGE	W4SKH	146.37	146.97		A
OAK RIDGE	K4EAJ	147.72	147.12		L
OAK RIDGE	K4EAJ	147.75	147.15		R
PARIS	K4KLX	147.96	147.36	N	
PIKEVILLE(KY)	KA4BQH	144.59	145.19	D	
PIKEVILLE(KY)	N4ETG	146.19	146.79	D	
PULASKI	W4JVO	146.715	146.115	N	
SAVANNAH	WB4DQU	146.31	146.91	N	
SHELBYVILLE	WR4AQM	147.66	147.06	N	
SHORT MTN	W4YXA	146.31	146.91		
SPARTA	W4BSA	147.69	147.09		A
SPRINGFIELD	WR4AGH	147.63	147.03	N	
STANTONVILLE	KA4OHC	144.79	145.39		
UNION CITY	WA4YGM	146.10	146.70	N	
WAVERLY	NO4Q	146.685	146.085		
WINCHESTER	WR4AFH	146.22	146.82	D	

220 MHZ

CHATTANOOGA	K4VCM	223.18	224.78		A
CHATTANOOGA	WA4ZOK	223.30	224.90		
CLARKSVILLE	KF4GP	222.34	223.94	N	
GALLATIN	WB4ZSA	222.38	223.98		PA
GREENEVILLE	WB4NKM	223.34	224.94		A
KNOXVILLE	WA4YON	222.86	224.46		EA
MEMPHIS	W4ZJM	222.34	223.95	N	L
NASHVILLE	N4DKA	222.42	224.02	N	
ROBERTSON CO.	WA4KHJ	222.46	224.06	N	C

440 MHZ

ALAMO	WB4EDS	448.75	443.75		L
BENTON/BEAN MT	K4SIR	449.95	444.95	N	C
BRISTOL/HLSTN MT	WR4ADD	449.50	444.50	D	
CHATTANOOGA	WA4ZOK	439.25	427.25		V
CHATTANOOGA	WA4NFO	449.10	444.10		
FISHERVILLE	N4DDS	449.30	444.30	N	A
FRANKLIN	WB4EPG	447.80	442.80	N	
GALLATIN	WA4YQC	449.35	444.45		
GALLATIN	WD4KWP	449.45	444.45		PA
GREENEVILLE	WB4NKM	449.65	444.65		
KNOXVILLE	K4HXD	449.30	444.30		
KNOXVILLE	WB4HAP	449.30	444.30		
KNOXVILLE	KB4NK	449.60	444.60		EA
KNOXVILLE	WB4GBI	449.70	444.70		C
MEDINA	K4BEZ	447.05	442.05		AL
MEMPHIS	WA4KOG	444.40	449.40	N	
MEMPHIS	WA4QWW	447.80	442.80	N	
MEMPHIS	W4ZJM	448.00	443.00	N	
MEMPHIS	WA4DOA	448.40	443.40	N	A
MEMPHIS	KA4JKT	449.50	444.50	N	A
MEMPHIS	WD4APK	449.80	444.80	D	
NASHVILLE	WA4PCD	449.675	444.675	N	C
NASHVILLE	N4TK	449.775	444.775	N	
NASHVILLE	WB4THG	449.875	444.875	N	
NASHVILLE	WB4OES	449.975	444.975	N	
OAK RIDGE	K4EAJ	449.40	444.40		L

6-METERS

CHATTANOOGA	WB4LRD	52.01	53.01	N	
KNOXVILLE	WB4IOB	52.15	53.15		A
KNOXVILLE	WA4YON	52.64	53.64		
KNOXVILLE	K4HXD	52.76	52.525		
MEMPHIS	WA4KOG	52.01	53.01	D	

10-METERS

KNOXVILLE	K4HXD	29.52	29.62		C
MEMPHIS	W4ZJM	29.52	29.62	N	

VIRGINIA REPEATERS

2-METERS

ALEXANDRIA	WD4PDP	146.055	146.655	M	
ALEXANDRIA	W4HFH	147.915	147.315	M	
ALTAVISTA	WA4ISI	146.055	146.655	N	
ARLINGTON	WA4YVN	146.445	147.045	M	
BARREN SPRINGS	K4HZS	146.07	146.67		
BEDFORD	WB4JBJ	147.705	147.105		LR
BERRYVILLE	WA4TSC	147.90	147.30	M	
BLACKSBURG	AB9I	146.115	146.715		
BLAND	N4AZJ	144.75	145.35	D	L
BLUEFIELD	W8MOP	144.89	145.49	N	A
BLUEFIELD	WD8DGY	146.415	147.015	D	PA
BRISTOL	K4ILW	146.07	146.67	D	A
BRISTOL	WDECYZ	146.28	146.88		
BROMLEY MT	WR4ATJ	146.01	146.61	D	
CHARLOTTESVILLE	WA4TFZ	146.16	146.76		
CHARLOTTESVILLE	WA4TFZ	146.325	146.925		
CHESAPEAKE	N4SD	146.19	146.79		A
CHESTERFIELD	KA4CBB	147.96	147.36		
CLIFTON FORGE	K4QEL	147.90	147.30	N	
COVINGTON	WA4HTI	146.22	146.82	N	
CULPEPPER	WR4BCS	147.72	147.12	M	
DANVILLE	WR4AHG	147.95	147.35	N	
DANVILLE(DCC)	WB4GJG	146.325	146.925		
DANVILLE/WHT OAK	K4WQS	146.10	146.70		
DEWITT	WA4ZOZ	146.43	147.03	N	
DUBLIN	KT4Z	147.78	147.18	D	
DUFFLD/POWLL MT	KA4BHH	146.10	146.70		C
FAIRFAX	W4LBL	146.19	146.79	N	PA
FAIRFAX	K4VYN	146.31	146.91	N	PA
FALLS CHURCH	W4AQD	144.75	145.35	M	
FARMVILLE	WB4NWP	146.31	146.91	N	A
FINCASTLE	W4WIC	146.04	146.64		
FOREST	K4STE	146.16	146.76		A
FRANKLIN	K4SPS	147.90	147.30	N	PA
FREDRICKSBURG	WB4LNT	147.615	147.015		
GALAX	WA4ZIV	144.83	145.43	N	
GALAX	WA4DFH	147.735	147.135		
GALAX/BRIRP MT	N4VL	147.69	147.09		EA
GATE CITY	WD4GTA	147.945	147.345	N	
GRUNDY	K4HWQ	147.92	147.32	N	A
GUM SPRING	KB4GX	147.87	147.27	N	
HAMPTON	WR4ALW	146.13	146.73		
HAMPTON	WR4AFT	146.34	146.94	N	T
HAYSI	WR4AWR	147.60	147.00	N	
HAZEL MT	WD4CYZ	146.235	146.835	N	
HILLSVILLE	WD4BTJ	147.975	147.375		A
JONESVILLE	WA4OVC	146.31	146.91		
LEBANNON	N4ATT	144.61	145.21	N	C
LEXINGTON	WA4WBD	146.07	146.67		
LEXNGTN/COLE MT	K4PQD	147.93	147.33	N	
LYNCHBURG	WR4AXO	146.01	146.61	N	
LYNCHBURG	WA4RTS	147.795	147.195		
LYNCHBURG	W4OSH	147.975	147.375	D	PA
MANASSAS	WD4JCE	144.67	145.27	M	R
MANASSAS	W1CRO	146.37	146.97		PA
MARION	N4BIW	146.04	146.64		
MARTINSVILLE	AB4L	147.985	147.285		
MCLEAN	WD4IWG	147.81	147.21	M	R
MT. LK/BALD KNB	K4TUE	146.31	146.91		
NEW MARKET	WB4DAK	146.025	146.625	D	
NEWPORT NEWS	WB4CTF	147.765	147.165		PA
NEWPORT NEWS	WA4OHX	147.975	147.375		PA
NORFOLK	NE4D	146.10	146.70		
PARKSLEY	WA4TVS	147.855	147.255	N	C
PETERSBURG	K4SII	147.78	147.18	N	
PETERSBURG	K4ARO	147.84	147.24		TPA
PETERSBURG	K4ARO	147.99	147.39		
PORTSMOUTH	N4PR	146.25	146.85	N	
RADFORD	KC4WA	147.645	147.045		
RICHMOND	W4SQT	144.83	145.43		
RICHMOND	WB4QEY	146.04	146.64	D	
RICHMOND	WR4ACW	146.28	146.88		PA
RICHMOND	W4ZA	146.34	146.94		T
RICHMOND	WA4ECM	147.66	147.06	N	
ROANOKE	WB4QOJ	146.145	146.745		LPA
ROANOKE	WR4AHT	146.34	146.94	D	AO
ROANOKE/POOR MT	W4CA	146.385	146.985	D	L
SALEM	W4PDL	146.28	146.88	N	
STAUNTON	WA4ZBP	146.25	146.85		
STAUNTON	W4WRN	147.645	147.045	N	
STERLING	WA4TXE	146.115	146.715	M	
SUFFOLK	WR4AKS	146.40	147.00	N	PA
TAZEWELL	WD4DZE	147.75	147.15	N	
VIRGINIA BEACH	WA4KXV	146.37	146.97		PA
VIRGINIA BEACH	WA4SBC	147.645	147.045	N	
WARRENTON	WB4FJT	147.765	147.165	M	
WAKSAW	WA4UAF	147.93	147.33		
WAYNESBORO	W4BLD	147.63	147.03		
WAYNSBR/AFTON MT	W4PNT	147.675	147.075		
WILLIAMSBURG	W4NTG	146.07	146.67		
WINCHESTER	W4RKC	146.22	146.82		
WISE/HIGH KNOB	K4AXO	147.81	147.21		
WOODBRIDGE	WB4FQR	147.84	147.24	M	A
WYTHEVILLE	WA4EMS	146.175	146.775	D	

10-METERS

CHARLOTTESVILLE	K4RKA	29.60	29.60	N	RBC

220 MHZ

ALEXANDRIA	WA4CCF	223.22	224.82	M	
DAN/WHT OAK	K4OAK	223.16	224.76	N	
FAIRFAX	K4GCM	222.34	223.94	N	
FALLS CHURCH	N4CHP	222.22	223.82	M	
FRIES	WA4DFH	222.74	224.34		
ROANOKE/POOR MTN	WB4DBB	223.34	224.94		
SUFFOLK	WA4JUO	222.34	223.94	N	C

440 MHZ

ALEXANDRIA	WR4AAG	439.25	426.27	M	V
ALEXANDRIA	W4HFH	449.60	444.60	M	
ANNANDALE	WR4AQG	444.85	449.85	M	PL
ARLINGTON	K8ZDA	449.00	444.00	M	L
CHARLOTTESVILLE	WA4TFZ	449.25	444.25		
COVINGTON	WA4HTI	447.25	442.25	N	
FAIRFAX	K4JYF	444.75	449.75	N	
FALLS CHURCH	WB8CRK	449.45	444.45	M	L
FINCASTLE	W4WIC	448.75	443.75		
LEXNGTN/COLE MT	K4POD	449.15	444.15	N	
LYNCHBURG	WB4DBB	449.35	444.35		L
LYNCHBURG	K4HEX	449.50	444.50	N	RB
MANASSAS	WD4JCE	444.225	449.225	M	L
PETERSBURG	K4ARO	449.50	444.50		
PETERSBURG	WA4MRJ	449.85	444.85		
ROANOKE	WR4AFE	447.75	442.75	N	
ROANOKE/POOR MT	W4CA	442.50	447.50	D	L
SOUTH BOSTON	WB4YWH	447.25	442.25	N	C
STAUNTON	W4WRN	449.95	444.95	N	C
TYSONS CORNER	WR6GUS	448.50	443.50	M	
VIRGINIA BEACH	WA4KXV	449.95	444.95		
WAYNESBORO	W4BLD	449.30	444.30		PA
WAYNSBR/AFTON MT	W4BLD	449.05	444.05		
WOODBRIDGE	WB4FQR	444.90	449.90	M	

6-METERS

ABINGTON	WR4ATJ	52.01	53.01	M	L
ALEXANDRIA	WA4CCF	52.13	53.13	M	P
DANVILLE(DCC)	WB4GJG	52.13	53.13		
FAIRFAX	KA4DCS	52.58	52.48	M	
LEXNGTN/COLE MT	K4POD	52.01	53.01	N	L
LYNCHBURG	WB4DBB	52.15	53.15		
NORFOLK	W4NV	53.525	52.525	N	
NORTN/HIGH KB	K4LSP	52.01	53.01	D	
SOUTH BOSTON	WB4YWH	52.07	53.07	N	C

SOUTH CAROLINA REPEATERS

2-METERS

AIKEN	N4ADM	147.885	147.285		
ANDERSON/LOCAL	WR4AIO	146.37	146.97		PA
ANDSN/SASFRAS MT	W4FVV	146.19	146.79		
BAMBERG	WA4DFP	144.73	145.33	N	
BEAUFORT	KB4CY	146.01	146.61	D	
CAROWINDS	AA4SC	147.78	147.18	N	
CHARLESTON	K4LWS	146.06	146.66	N	
CHARLESTON	K4ILT	146.16	146.76	N	PA
CHARLESTON	W4IVE	146.34	146.94	N	T
CHARLESTON	WB4LET	147.87	147.27	D	A
CHERAW	KA4ABW	147.735	147.135		PA
COL./GASTON	WB4NEP	144.61	145.21		EA
COLUMBIA	N4EOY	146.07	146.67	D	
COLUMBIA	K4AVU	146.28	146.88		
COLUMBIA	K4LNU	146.34	146.94	D	
COLUMBIA	K4AVU	147.81	147.21		
COLUMBIA	WB4VLY	147.93	147.33	D	
COLUMBIA	K4LNU	147.96	147.36	D	A
DILLON/PEE DEE	NN4N	146.145	146.745		EA
FLORENCE	W4ULH	146.25	146.85	D	
FLORENCE	WA4ISM	146.37	146.97		PA
FT JACKSON	WB4OCB	146.16	146.76		
GOOSE CREEK	W4NAT	147.78	147.18	N	
GREENVILLE	W4AZT	146.10	146.70		A
GREENVILLE	K4LEO	147.375	147.975	N	PA
GREENVILLE	WR4	147.675	147.075	N	PA
GREENWOOD	WB4UGA	147.765	147.165		PA
GREER	W4IQQ	146.34	146.94	N	
GRNVLE/CSRS HD	W4NYK	146.01	146.61		
GRNVLE/PARIS MT	W4NYK	146.22	146.82		PA
HODGES/GREENWOOD	KB4YF	144.53	145.13	D	
LANCASTER	W4PAX	146.10	146.70		
LANCASTER	WB4BGF	147.84	147.24	D	
LAURENS	WA4UZA	146.25	146.85	N	A
LEXINGTON	WR4AGK	147.255	146.835	N	
LONG MT	WA4JRJ	147.87	147.27	N	
MARION	W4YLT	146.40	147.00	D	EA
MONCKS CORNER	WA4DDK	147.75	147.15	N	A
MYRTLE BEACH	WD4JMT	146.01	146.61		A
MYRTLE BEACH	WA4YEE	147.72	147.12	N	
MYRTLE BEACH, N	WA4JYR	147.63	147.03	N	PA
N. AUGUSTA	K4FKJ	146.13	146.73		
N. AUGUSTA	K4VF	146.34	146.94		
NORTHWEST SECT.	W4GZL	144.51	145.11	N	P
ORANGEBURG	WR4AQY	147.69	147.09	N	A
PICKENS	WB4YXZ	146.40	147.00		A
PROSPERITY	WB4OCB	147.84	147.24		
ROCK HILL	K4YTZ	146.325	146.925		PA
ROCK HILL	K4YTZ	146.43	147.03		PA
ROCKY SPUR	KS4I	147.885	147.285		
SIMPSONVILLE	WA4LDP	146.13	146.73		
SIMPSONVILLE	WA4SDT	147.75	147.15	N	R
SPARTANBURG	K4JLA	147.69	147.09	N	PA
SUMMERVILLE	WR4AUV	146.19	146.79	N	
SUMTER	WB4AFR	146.04	146.64		
SUMTER	WA4UMU	147.615	147.015		A
SUMTER	W4VFR	147.66	147.06	N	
WHITE HALL	W4BWZ	146.31	146.91		

220 MHZ

COLUMBIA	N4EOY	222.30	223.90	D	D
EASLEY/SASFRS MT	KJ4X	222.46	224.06		
PICKENS/CSRS HD	WB4QHF	222.54	224.14		

440 MHZ

CHARLESTON	N4SC	449.10	444.509	N	T
COLUMBIA	KC4YI	449.10	444.10	D	
ROCK HILL	KA4RFA	442.25	447.25	N	

WEST VIRGINIA REPEATERS

2-METERS

ALDERSON	WR8AKZ	146.13	146.73	N	
BECKLEY	WD8POF	144.77	145.37	N	LA
BECKLEY	K8BO	146.34	146.94	N	O
BKLY/FLAT TOP MT	K8BO	146.25	146.85	N	A
BLUEFIELD	W8MOP	144.89	145.49	D	A
BOLT MT	WB8LVH	144.57	145.17	N	L
BRIDGEPORT	WR8ALC	147.705	147.105	N	EA
BRIDGEPORT	K8VNQ	147.72	147.12		EAL
BUCKHANNON	K8WYH	146.25	146.85	N	
CHARLESTON	WR8AER	146.22	146.82	N	
CHARLESTON	WB8COV	146.28	146.88	N	
CLARKSBURG	WB8ZVS	146.22	146.82	D	A
COAL MTN	WB8KAD	146.12	146.72	N	A
COTTAGEVILLE	WR8AKV	146.31	146.91	N	
DUNBAR	K8VKI	147.72	147.12		
ELKINS	WR8AQH	146.04	146.64	N	
FAIRMONT	W8SP	146.31	146.91		
FRANKLIN	W3RUA	147.945	147.345		
GRAFTON	K8VNQ	147.975	147.375		L
HUNTINGTON	WB8EZR	146.04	146.64	N	
HUNTINGTON	WR8AGH	146.16	146.76	N	A
HUNTINGTON	KA8BKX	147.90	147.30	N	
KINGSTON/LICK KB	W8FG	144.87	145.47		
LAYLAND/MANN MT	WB4	144.71	145.31	N	L
LEON	WB8NMT	147.78	147.18	N	
LOGAN	WD8KWC	144.63	145.23	N	
LOGAN	WA8ZLR	146.09	147.11	N	
LOGAN	WR8ADD	146.37	146.97	N	
MADISON	KA8JYR	146.06	147.06	N	TA
MARTINSBURG	WB8VUZ	147.855	147.255	N	
MCMECHEN	WA8ULB	146.31	146.91		
MCMECHEN	N8CFX	147.75	147.15		
MORGANTOWN	K8LG	144.83	145.43		L
MORGANTOWN	WB8YZT	146.085	147.955	N	
MORGANTOWN	W8CUL	146.16	146.76		LPA
MULLENS	WR8AKX	147.63	147.03	N	LA
NEW MARTINSVLLE	WR8ABY	146.34	146.94	N	
OAK HILL	W8GH	146.19	146.79		PA
PARKERSBURG	WA8CRW	146.37	146.97		PA
PARKERSBURG	WD8AXY	147.99	147.39		
PARSONS	K8VNQ	144.73	145.33		EAL
PIE HORSE MT	N8APH	144.67	145.27	N	A
POINT PLEASANT	W8KNM	147.66	147.06	N	
PRINCETON	WB8NRK	146.46	147.06		A
RAVENSWOOD	WD8JNU	146.07	146.67		
RAVENSWOOD	WD8JNU	146.10	146.70		R
RICHWOOD	K8VKB	146.34	146.94		
SCOTT DEPOT	K8SLI	147.87	147.27	N	A
SPENCER	WA8SAK	146.01	146.61	N	
ST ALBANS	WB8GDY	146.40	147.00		
ST ALBANS	K8BCH	147.96	147.36		R
TERRA ALTA	WB8PHU	147.60	147.00		PA
WEIRTON	KC8JN	146.34	146.94		A
WELCH	WB8SXZ	144.89	145.49		
WHEELING	W8YFX	144.59	145.19	N	
WHEELING	W8JDH	146.16	146.76	N	

220 MHZ

HUNTINGTON	KA8BKX	222.54	224.14	N	
KINGSTON/LICK KB	W8FG	223.14	224.74		

440 MHZ

KINGSTON/LICK KB	KA8EMX	449.80	444.80	N	
MORGANTOWN	K8LG	449.70	444.70		L
MORGANTOWN	W8CUL	449.80	444.80		PA

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GEORGIA REPEATERS

2-METERS

ADAIRSVILLE	WB4LRA	146.085	146.685	
ALBANY	WR4ADM	146.10	146.70	
ALBANY	W4MM	146.13	146.73	
ALBANY	WR4ANB	146.22	146.82	
AMERICUS	WR4AQH	147.87	147.27	
ASHBURN	WA4NTF	144.63	145.23	
ASHBURN	K4QT	147.285	147.885	
ATHENS	WA4BKF	146.13	146.73	
ATHENS*	K4TQU	147.375	147.975	
ATLANTA GA TECH	W4AQL	147.66	147.06	
ATLANTA	W4VTA	144.51	145.11	C
ATLANTA	W4AQL	144.55	145.15	
ATLANTA	N4CLA	144.69	145.29	
ATLANTA	WB4LBM	144.71	145.31	
ATLANTA	WR4ABE	146.04	146.64	T
ATLANTA	W4DOC	146.22	146.82	
ATLANTA	WA4LOJ	146.34	146.94	C
ATLANTA	WR4ABC	146.37	146.97	
ATLANTA	WR4ARK	146.40	147.00	PA
ATLANTA	K4SMX	147.795	147.195	
ATLANTA	W4LUZ	147.855	147.255	
ATLANTA/BELL*	W4PME	144.81	145.41	
AUGUSTA*	W4ALK	147.72	147.12	
AUGUSTA*	N4BMA	147.78	147.18	R
BALDWIN	WD4NHW	147.78	147.18	
BLAIRSVILLE	WA4EZN	147.70	147.10	
BRUNSWICK	K4TVE	146.13	146.73	
BUFORD	WD4JXR	147.075	147.675	P
BUFORD	WD4JXR	147.87	147.27	
CANTON	KE4PN	144.67	145.27	
CANTON	WB4ZCS	144.67	145.27	
CARROLTON	W4FWD	146.04	146.64	
CEDARTOWN	W4CMA	147.72	147.12	
CLEVELAND	K4FOW	144.69	145.29	
CLEVELAND	K4FOW	147.015	147.615	
CLOUDLAND	N4AHE	147.225	147.825	
COHUTTA-RTTY	W4KAU	146.46	147.06	R
COLUMBUS	WA4QHN	146.01	146.61	
COLUMBUS	N4BJZ	146.28	146.88	
COLUMBUS-RTTY	K4ACH	144.77	145.37	
CONYERS	WR4	146.925	146.325	
CONYERS	WD4JDM	147.81	147.21	
COVINGTON	WA4ASI	146.925	146.325	
CUMMING	K4BYK	147.75	147.15	PA
DALLAS	K4DVJ	146.25	146.85	
DALTON	N4BZJ	144.63	145.23	
DALTON*	KA4WIZ	147.315	147.915	D
DECATUR	WB4CPL	144.75	145.35	
DOUGLASVILLE	KB4EO	147.96	147.36	
DUBLIN	WA4HZX	147.96	147.36	
FOLKSTON	K4DMK	146.19	146.79	
FOREST PARK	K4KQK	144.65	145.25	
FORSYTH	WR4AQA	147.315	147.915	
GAINESVILLE	WD4IWJ	146.31	146.91	
GAINESVILLE*	W4NSD	146.07	146.67	A
GRIFFIN	WB4GWA	144.79	145.39	
GRIFFIN	WR4AIV	146.31	146.91	
GRIFFIN	WR4AEA	146.43	147.43	
HAMILTON	WB4ULJ	144.59	145.19	
HAMILTON	WD4MJV	146.835	146.235	
HAPEVILLE	WR4ABN	147.63	146.03	
HARTWELL*	KY4T	146.895	146.295	A
IRWINTON	WB4NFG	147.84	147.24	
JASPER	W4OOM	146.10	146.70	
JESUP	WA4EQL	146.07	146.67	
JONESBORO	WR4	144.61	145.21	
JONESBORO	WA4OGE	144.73	145.33	
JONESBORO	W4BOC	144.85	145.45	
KENNESAW	WB4UPC	144.83	145.43	
LAGRANGE	WR4	146.40	147.00	
LAGRANGE	WB4BXO	147.93	147.33	
LYONS	K4HAO	146.22	146.82	
MACON	WB4OLL	144.83	145.43	
MACON	W4BKM	146.06	146.66	
MACON	K4IIA	147.66	147.06	
MARIETTA	WB4KJB	146.13	146.73	
MARIETTA	W4BTI	146.28	146.88	
METTER	W4TYM	147.645	147.045	
MILLEDGEVILLE	KA4WDF	144.51	145.11	A
MILLEDGEVILLE	WB4DOJ	146.10	146.70	
MOULTRIE	WD4KOW	146.19	146.79	
NEWNAN	K4SEX	146.19	146.79	
PRESTON	W4TOV	146.385	146.985	
QUITMAN	WA4NKL	146.28	146.88	
RINGGOLD	WR4ABZ	146.715	146.115	
ROME	W4VO	146.34	146.94	
ROME	K4HNM	147.30	147.90	
ROSWELL	N4CLA	144.87	145.47	
SANDY SPRINGS	WB4CPL	144.75	145.35	
SANDY SPRINGS	WA4NNO	146.40	147.00	
SAVANNAH	K4LNX	144.63	145.23	
SAVANNAH	K4NLX	144.63	145.23	
SAVANNAH	K4NLX	146.10	146.70	PA
SAVANNAH*	W4HBB	146.28	146.88	
SAVANNAH*	W4HBB	146.37	146.97	D A
SMYRNA	WA4YUR	144.61	145.21	
STATESBORO	K4MEF	147.81	147.21	
STONE MTN	W4BOC	146.16	146.76	
SVR CRK/MT ALTO	K4HNM	147.90	147.30	
SWAINSBORO	K4VYX	146.19	146.79	
THOMASTON	K4IMK	147.99	147.39	
THOMASVILLE	K4UFM	147.66	147.06	
TOCCOA*	KA4DIP	147.93	147.33	PA
VALDOSTA	W4APS	146.16	146.76	
VALDOSTA	WA4SMH	147.135	147.735	
VIENNA	WA4RWS	144.89	145.49	
WARNER ROBBINS	WB4BDP	146.01	146.61	
WARNER ROBBINS	W4HON	146.25	146.85	
WARNER ROBBINS	WR4AZP	147.90	147.30	
WAYCROSS	WR4AMK	146.04	146.64	
WEST BROW	KC4EV	147.81	147.21	N
WRIGHTSVILLE	WA4RVB	146.34	146.94	

220 MHZ

ATLANTA	KK4C	223.22	224.82	PA
CANTON	WB4UPC	222.34	223.94	
CANTON	WB4UPC	223.06	224.66	
KENNESAW	WB4UPC	222.52	224.12	
KENNESAW	WB4UPC	223.34	224.94	

440 MHZ

ALBANY	WA4GKI	439.25	427.25	V
BUCKHEAD	WA4YNZ	444.60	449.60	
COLUMBUS	WA4QHN	449.20	444.20	
KENNESAW	WB4IXF	449.50	444.50	
STONE MTN	W4BOC	444.25	449.25	
WARNER ROBBINS	WD4ASB	444.50	449.50	

6-METERS

MARIETTA	WB4UPC	53.05	52.05	

EAST KENTUCKY REPEATERS

2-METERS

ASHLAND	WR4ACQ	146.34	146.94	
ASHLAND	WR4ALH	147.84	147.24	
BETSY LAYNE	WA4YCU	146.035	146.635	
BLACK MOUNTAIN*	NQ4C	147.94	147.34	
ELKHORN CITY	WR4AWR	147.60	147.00	EAO
GRAYSON	N4BDX	144.79	145.39	
HAZARD	K4VHF	146.07	146.67	
JENKINS	WD4PDJ	147.99	147.39	
LOUISA	WA4SWF	146.13	146.73	
MAYTOWN	N4ESP	146.28	146.88	O
MOREHEAD	K4GFY	146.31	146.91	
PANTSVILLE	WB4PLK	147.63	147.03	
PIKEVILLE	KA4BQH	146.25	146.85	
PIKEVILLE*	KA4BQH	144.59	145.19	O
PIKEVILLE*	N4ETG	146.19	146.79	PA

THE REPEATER JOURNAL PRESENTS AN UPDATED INDEX OF OVER 600 LOCAL REPEATERS IN THE FIVE STATE CVRA-SERA TERRITORY!

YOUR STATE DIRECTOR OR HIS ASSISTANT CAN BE OF VALUABLE SERVICE TO YOU – CONTACT HIM FOR HELP IN COORDINATION

Knash! Gripe! Groan! Complain . . .

It's funny when you turn on your low-band ring and participate in a contest how much complaining and moaning you are infringing on someone elses frequencies.

I worked the ARRL November Sweepstakes with my brother Mike, KC4AO. During rest periods, I tuned around 75 meters to see what else was happening. From one end of the band to the other were "regular" folks complaining about them "durn" contesters taking over the band and interfering with their "private" frequency. I sat and listened to one group early Sunday morning. They spent one solid hour complaining, turning up audio, adjusting frequency, teasing contesters and in general crying about how bad it was to operate that weekend. A couple of times, they made a long pause–just long enough for a contester to sit down on their frequency and start calling "CQ Sweepstakes". When he would finish, they would click on their "full gallons" and let him have it, both barrels. The frustrated contester of course moved off.

I'm not advocating giving the contesters the band, but I fail to see how 2 or 3 contests a year, just 5 or 6 days out of 365 could be so detrimental to the low band regulars as they seem to make out.

I'm not really sure what ARRL could do to eleviate the clash, especially on 75 meters. There are dozens of nets, and Lord help you if you happen to be operating on a net frequency on or near net time. The nets being spread from 3900 to 3990 would prevent a section of the band being set aside for contesting only. The ARRL does suggest operating frequencies for contesting, but the events being so popular, they naturally spill over and ultimately encompass the entire band, all bands.

There seems a natural hostile attitude between the regulars and the contesters, I'm not sure why, but it's there.

The contester is eager to work as many stations as possible, so he is in a hurry to find a good frequency and plop down and start working. The regulars resent the sideband interference from these contesters and make no bones about letting them know their anguish.

So what's the answer? There is none, the fussing, fuming will start again in June with Field Day and again in November with the 1983 Sweepstakes.

—Wayne C. Williams, K4MOB Editor

Savannah Special Events Station—This Weekend!

SAVANNAH GEORGIA: Area amateurs will operate a special events station in honor of the state of Georgia's and historical Savannah's 250th birthday. Operation will be February 12 and 13, 1500 - 2000 Z on upper 25 KC, all general phone and 21.130 to 21.170 KHZ novice. QSO'S on 2 meters 146.52 only. For special certificate send QSL card with QSO number and large S.A.S.E. to call of contact operator.

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1983 Tennessee QSO Party Scheduled For March 19-20

—by Jim Bogard, KY4L, Publicity Chairman

The Tennessee Council of Amateur Radio Clubs announces their 13th annual Tennessee QSO Party. The event will run from 2100Z Saturday, March 19 to 0500Z, Sunday March 20, and 1400-2200Z Sunday.

EXCHANGE: **Tennessee** stations give a signal report and county. **Out-of-State** stations send signal report and State, Province, or Country.

SUGGESTED FREQUENCIES: CW - 1815 khz, and approx. 50 khz from bottom of the HF bands. PHONE: 1860, 3980, 7280, 14280, 21380, 28580 khz. NOVICE: 3715, 7125, 21125, 28125 khz. A minimum operating time of 10 minutes must be logged for each change of band or mode.

SCORING: 1½ points per **CW** contact. 1 point for each **phone** contact. Combine phone and CW score. Recognition will be given for phone-only and CW-only scores.

MULTIPLIERS: **Out-of-state** stations multiply QSO points by the total number of Tennessee counties worked. **Tennessee stations** multiply QSO points by the sum of the following worked: states (50), Tennessee counties (95), VO and VE1-7 (7). DX stations county only for points, not as multipliers.

BONUS POINTS: Portable and mobile operation, add to total score a bonus of 500 points for each county you operated in outside of home county. A minimum of 10 contacts must be made in each county to qualify for bonus points.

LOGS: Date/Time in GMT, station worked, band, mode, exchange, and score. Logs must be legible to avoid disqualification. Submit crosschecks sheets for each band and mode, if over 100 contacts on a band/mode.

AWARDS: Plaques to highest scoring stations: (1) Tennessee fixed (2) Tennessee mobile, (3) Tennessee portable, (4) Out-of-State. 1st Place Certificates to highest scoring station in (1) each State (2) Canada, (3) DX Country, (4) Tennessee Novice/Technician, (5) Out-of-State Novice/Technician (6) Tennessee Phone only (7) Tennessee CW Only. Participation certificate to all stations submitting lots with at least 25 contacts.

Logs must be postmarked no later than May 1, 1983. Send business-size SASE with your log to ensure return (if desired), complete results, and any certificates earned. Mail to OAK RIDGE AMATEUR RADIO CLUB, ATTN: CONTEST COORDINATOR, P.O. BOX 291, OAK RIDGE, TENNESSEE 37830.

Further information, or complete contest rules may be obtained by writing the above address.

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TEN-TEC
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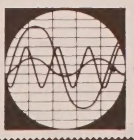

master charge

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P.O. BOX 100, HWY 441, DEPT. CQ
OTTO, NORTH CAROLINA 28763

Directors Need Your Linking Frequencies

CVRA-SERA Directors would like to have records of all linking, control and other used frequencies by repeater owners to update the master list.

More control frequencies than ever are being used by repeater owners, and many new ones are being asked for daily. With the possibility of conflicting frequencies for control purposes of two nearby repeaters, CVRA-SERA Directors need lists of frequencies presently in use.

All repeater owners who use control and linking frequencies in the lower part of the 220 mhz and 440 mhz band are asked to submit these frequencies to the Full Membership chairman.

All the frequencies submitted will be entered on the Director's master computer printouts for ready information when needed.

We can assure every repeater owner, these frequencies will be used for the sole purpose of coordination and will not be given out of published to anyone but the Directors.

Please fill out the simple form below and send it to: FREQUENCY COORDINATION, CVRA-SERA, P.O. BOX 235, COLFAX, N.C. 27235.

REPEATER CONTROL AND LINKING FREQUENCY INFORMATION

Location	Call	Input	Output

Repeater is Linked ( ) Yes ( ) No.

Linking Frequency used _____

List Repeaters Linked with _____

Repeater is Split Site ( ) Yes ( ) No.

Linking Frequency used _____

Repeater is Radio Controlled ( ) Yes ( ) No.

Control Frequency _____

I understand this information is confidential and will not be published or available for the general Amateur public.

Person Submitting Form _____

Callsign _____ **( ) Trustee ( ) Owner**

Coming Events

FEBRUARY

13 ..... Hamfest, FAYETTEVILLE, W.VA.
20 ..... Winter Hamfest, ELKIN, N.C.
27 ..... Winterfest, VIENNA, VA.

MARCH

19-20 ..... Roa.Div. ARRL Conv.-Hamfest/ Computerfair, CHARLOTTE, N.C.
19-20 ..... Hamfest, ORLANDO, FLA.
26-27 ..... Ga. State ARRL Conv./Hamfest, COLUMBUS, GA.

APRIL

16 ..... Hamfest, OAK RIDGE, TN.
17 ..... RARS Hamfest, RALEIGH, N.C.
17 ..... Kennehoochee Hamfest, KENNESAW, GA.
29-30, May 1 ..... Dayton Hamvention, DAYTON, OH.
30, May 1* ..... Tri-Cities Hamfest, JC/KINGSPORT, TN.
April 30-May 1 ..... Hamfest, GREENVILLE, S.C.

MAY

14 ..... Durham FM Assn. Hamfest, DURHAM, N.C.
21* ..... Gaston County Hamfest, GASTONIA, N.C.
28-29 ..... Hamfest, KNOXVILLE, TN.
29 ..... RVARC Hamfest, ROANOKE, VA.
29* ..... Maryland FM Assn. Hamfest, HARMANS, MD.

JUNE

5 ..... Ole Virginia Hams Hamfest, MANASSAS, VA.
5* ..... Tri-State ARA Hamfest, HUNTINGTON, W.VA.
18-19 ..... Atlanta Hamvention, ATLANTA, GA.

JULY

2-3 .... W. Virginia State Radio Conv., JACKSON'S MILL, W.VA.
5-9 ..... Mobile AR Awards Nat'l Conv., CHARLESTON, W.VA.
16 ..... Summer Swapfest, CARY, N.C.
24 ..... TSRAC Hamfest, WHEELING, W.VA.
23-24 ..... Hamfest, CHARLESTON, S.C.
30-31 ..... Western Caro. ARS Hamfest, ASHEVILLE, N.C.
31 ..... Baltimore ARS Hamfest, BALTIMORE, MD.
31* ..... Jackson County Hamfest, RIPLEY, W.VA.

AUGUST

7 ..... SVARC Hamfest (Winchester), BERRYVILLE, VA.
13-14 ..... Delta Division ARRL Conv., SHREVEPORT, LA.
28 ..... East River ARC Hamfest, BLUEFIELD, W.VA.
28* ..... Hamfest, MORGANTOWN, W.VA.

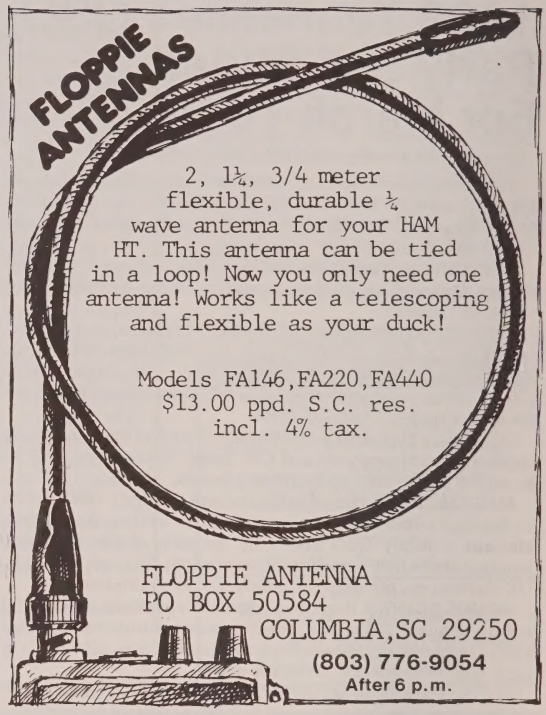
SEPTEMBER

3-4 ..... Hamfest, SHELBY, N.C.
10-11 ..... Central Georgia Hamfest, WARNER ROBBINS, GA.
11* ..... Hamfest, GAITHERSBURG, MD.
17* ..... WCARS II Swapfest, GREENWOOD, S.C.
18* ..... Hamfest, CINCINNATTI, OH.
25 ..... Hamfest, GAINESVILLE, GA.

OCTOBER

2 ..... Hamfest, ROCK HILL, S.C.
2 ..... Hamfest, ROME, GA.
7-9 ..... ARRL National Convention, HOUSTON, TX.
8-9 ..... Hamfest & Computer Show, VIRGINIA BEACH, VA.
9 ..... Hamfest, MAYESVILLE, N.C.
15-16* ..... Hamfest, CLEARWATER, FLA.
22-23* ..... Hamfest, CHATTANOOGA, TN.
22-23* ..... ARCS Hamfest, SAVANNAH, GA.

(Editor's Note) Hamfest dates marked with an asterisk have not been confirmed to the Repeater Journal. Dates are based on last year's schedule. Clubs sponsoring hamfests who have not sent in their 1983 date should send information to Repeater Journal Editor.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The HL-82V is capable of operating FM, SSB or CW operation. Has low/high power output, preamp, power output meter, indicator lights. 2 to 12 watts in gives 10 to plus 80 watts out. Typical 10-watts in, over 80-watts out. Great for the 2-meter rig in the car.

HL-160V List $329.95 Only **$289.00**

The HL-160V is truly the "Boss Hawg". Unlike any other on the market, the 160V has DUAL input power levels: Lo input for your H/T and Hi input for your base or mobile rig. Has preamp, hi/lo power output switch, power out meter. Draws 12 to 23 amps. Drive to 160 watts with your 3-watt H/T or with your 10-watt mobile rig. Can use either!

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1983 Roanoke Division Newsletter Contest Winners Announced

Gay Milius, Jr., W4UG, Roanoke Division Director, ARRL announced near the end of the year, winners in each category of the Roanoke Division Newsletter Competition.

The winners were:

CATEGORY 1, CLASS A (50 or fewer active members) JACKSON COUNTY ARC, Bob Morris, WB8CTO, Editor, Ripley, W.Va.

CATEGORY 2, CLASS A (51 or more active members) FORSYTH ARC, INC. Jim Lehnberg, W4CTR, Editor, Winston-Salem, N.C.

CATEGORY 2, CLASS B – NEWSLETTER, Old Virginia Hams ARC, Inc. Frank Goodell, WA4GFG, Editor, Manassas, Va.

HONORABLE MENTION: In Category 2, Class B, was awarded to The Triple States Radio Amateur Club Newsletter "B-N-T", Ralph A. McDonough, K8AN Editor, Wheeling, W.Va.

Milius said there were 11 entries submitted in the competition from around the District. He reminds all club newsletter editors to get ready, he will be announcing 1983 competition very soon.

He said, "Congratulations to the winners! I will be presenting suitable plaques to the winners." Milius reminds that a good Newsletter makes a club! It has been proven time and again.

Extra Repeater Journals Available To Members

If you would like to have an extra Journal to send to a friend. Extra copies may be obtained from our booths at Hamfests, or you may write the Repeater Journal Editor. Enclose $1.50 for one Journal, $2.50 for two Journals or $3.50 for three copies. This includes 71-cents for 3rd class postage. We cannot send free post paid Journals, the cost is prohibitive. Normal cover price for a Repeater Journal is $1.25 each.

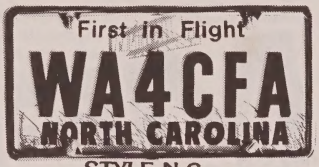
If you wish to send a May Repeater Journal to a friend, send his name and address prior to April 1st so we can make a label and include it in our bulk mailing. Cost then would be $1.00 each, no postage. Address must arrive prior to mailing deadline for free postage. Send to Journal Editor.

Only Three Journal Editors

The first Repeater Journal in 1971 was typewritten and duplicated by first Editor, Don Harris, W4BUZ of Greensboro, N.C. In late 1972 Bill Parris AA4R of Charlotte took the Journal and moulded it into a magazine format. He published until 1977. In August of 1977, Wayne Williams, K4MOB took over duties as editor and has continued publishing the Journal since that date.

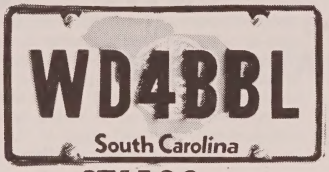
New! **PERSONALIZED LICENSE PLATES**

Now You Can Display Your Call On Your Car

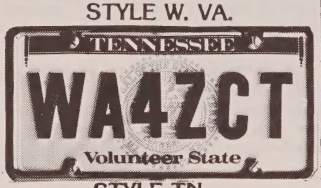


STYLE N.C.

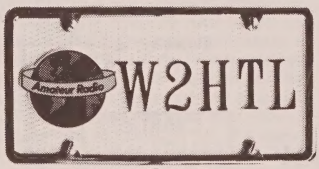
STYLE W. VA.



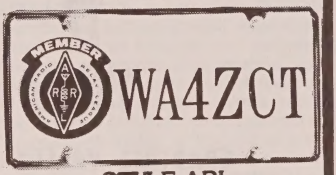
STYLE S.C.



STYLE TN.



STYLE W.D.



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Fill in form below and mail with your CHECK or MONEY ORDER TO:

PERSONAL I.D.
PO Box 4651
Hollywood, Fl. 33083

TAG STYLE _____

COPY: (Max. 7 Characters) ☐☐☐☐☐☐☐

NAME _____

ADDRESS _____

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PLEASE PRINT CLEARLY RJ:2

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(RARS)

11TH ANNUAL

AN ARRL APPROVED

HAMFEST

$4.00 GENERAL ADMISSION

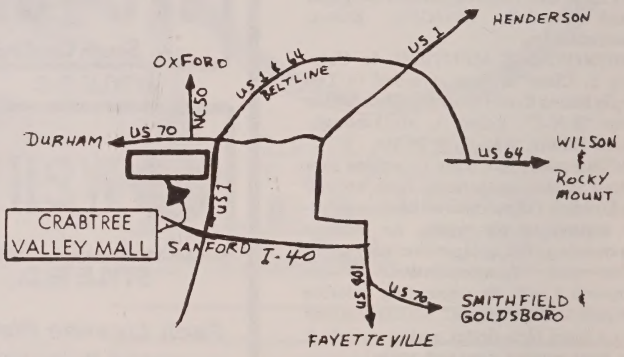
ACTIVITIES BEGIN AT 8:00 A.M.

APRIL

17

1983

CRABTREE VALLEY MALL
US 70 WEST
RALEIGH, N.C.



★ PRIZES!!! PRIZES!!! PRIZES!!!

1ST PRIZE – Choice of either a Kenwood TS830 S HF Transceiver or a Kenwood TR 9130 2 Meter 25 Watt Multimode Transceiver with a Mirage 3016 2 Meter 150 Watt Amplifier and Heavy Duty AC Supply. G.I.S.M.O. of Rock Hill, S.C. assisted R.A.R.S. on this prize.

2ND PRIZE – Kenwood TR2500 2 meter Synthesized Handheld Transceiver. Courtesy of G.I.S.M.O. and R.A.R.S.

3RD PRIZE – Telex Hy-Gain Ham IV Antenna Rotator. R.A.R.S. & Hy-Gain Cooperated on this prize.

4TH PRIZE – Autek Research MK-1 Electronic Memory Keyer. Courtesy of R.A.R.S.

MANY OTHER PRIZES WILL BE DRAWN ALL DAY SUNDAY!!!

★ **E-X-P-A-N-D-E-D- FLEA MARKET (Covered)** ★ **CW & HOMEBREW CONTESTS**

★ **WALK TO NEARBY MOTELS AND RESTAURANTS**

Howard Johnson–Crabtree Valley	1-919-782-8718
Sheraton Crabtree Motor Inn	1-919-787-7111
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★ **HOSPITALITY ROOM AT CRABTREE MALL**
WEST COMMUNITY ROOM ON SATURDAY EVENING, 7 till 10 p.m. Social and Door Prizes!

★ TALK-IN SATURDAY AND SUNDAY
W4DW (146.04/146.64)
K4ITL(146.28/146.88)

★ **SPECIAL INTEREST MEETINGS: M.A.R.S., & OTHERS.**

FOR ADDITIONAL INFORMATION, DETAILS, OR RESERVATIONS WRITE:
RARS Hamfest, P. O. Box 17124, Raleigh, N. C. 27619

District Ramblings

FAYETTEVILLE, N.C.—Kelly, N4EWG reports coordination of the frequency 205-805 for a new repeater in Fayetteville. He presently is checking out the machine at his home address and a permanent site can be chosen. (N4EWG)

• • •

GREENVILLE, S.C.—K4LEO sent a note in that he is placing a repeater on a reverse pair, 147.375-147.975 in the Greenville area. He indicated the machine would be tone accessed and a closed private machine.

• • •

HIGH POINT, N.C.—The High Point club has changed frequencies with a Greensboro local repeater. High Point was having interference and intermod problems at their site, so a change was made to 735-135 formerly the Greensboro WR4AUA frequency. Greensboro has taken the old High Point frequency of 235-835. (Editor's note: This is a clear example of the best in cooperation in the spirit of amateur radio)

• • •

OXFORD, N.C.—The WA4JCS Oxford repeater has changed frequencies to 144.57-145.17. They have abandoned the old frequency of 90-30.

• • •

KNOXVILLE, TN.,—The WB4GBI 67-27 sub band repeater has changed to a new coordinated frequency of 83-43, also in the sub band. (WB4GBI)

SAVANNAH, GA.—The WR4AVO Savannah repeater has changed frequency from 63-03 to a new sub band frequency of 63-23. The WD4AFY 77-37 sub band repeater in Savannah is off the air indefinitely. Plans to put another machine on this frequency in the future are being made. (Andy, WD4AFY)

• • •

SAURATOWN MT. (Winston-Salem) N.C.—Beachum Leonard, W4RXG is now trustee of the 223.10-224.70 RTTY repeater formerly located in downtown Winston-Salem. The machine is temporarily housed in the same building with the 223.28-224.88 repeater, with plans for a more permanent site on Sauratown Mt. in the future. (WA4BVW)

• • •

READERS! — Send us your repeater news. A new antenna, a new repeater, a new location, a problem solved, all newsworthy items should be sent to the Repeater Journal editor. This column is dedicated to news about repeaters from Washington, D.C. through Georgia, and from the east coast to Eastern Kentucky. (Editor)

• • •

ORLANDO, FLA.—Al Canning, WB4HAK, chairman of the Orlando Hamcation reports that they didn't even think about a conflict with the Charlotte Hamfest when they took the only date available for the Orlando Expo Centre, and didn't discover the conflicting dates until too late. He also said they had to contract for the same weekend for 1984 and 1985. Orlando had to move from the Sheraton Twin Towers tc the Central Flordia Fairgrounds last year and received much complaining. So in an effort to get the hamfest in better quarters, large enough to hold everything, the Expo Centre was all that was left. Al said he hopes that Charlotte does have a successful hamfest and hope they are not too much in conflict. Statitician on registrations tells him that 85% of their attendees are from Florida.

• • •

FRIES, VA. — Buford Underwood, WA4DFH reports his 222.74-224.34 repeater is now on Pipers Gap, about 12 miles SE of Galax. The machine with a Hamtronics exciter and amplifier and VHF Engineering receiver feeds a Wacom duplexer into a Ringo Ranger II. Pipers Gap is 3,300 feet AMSL. (Buford, WA4DFH)

• • •

WINSTON-SALEM, N.C.—Charles P. Everest, W4HKB has coordinated the frequency of 144.87-145.47 for a new repeater planned for the Winston-Salem area. (WA4BVW)

• • •

ROANOKE, VA. — Herman, WB4DBB reports his 223.34-224.94 repeater is now located on Poor Mt. just outside of Roanoke on the WSLS-TV tower at 3,800 feet AMSL. The machine which has been running at Herman's home since December now has excellent coverage into the Shenandoah Valley of Virginia and into North Carolina. The machine runs 80 watts ERP duplexed into a Phelps Dodge Stationmaster. (Herman, WB4DBB)

MICROCOMPUTER OPERATED 2-METER SYNTHESIZED FM TRANSCEIVER

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PCS-4000

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- 16-channel memory
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2-Meter H/T

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Technical

Locating "Power Line Noise" Sources

—by Frank F. Bateman, N4HRP
(From Mecklenburg (N.C.) ARS News)

(The author, until his recent retirement, was Vice-President, Engineering for Jefferson Pilot Broadcasting Co. – Editor)

First, what is "Power Line Noise"? It is man-made RF interference with certain specific characteristics: i.e., it consists of wideband random noise energy that is generally over 100% amplitude modulated by the 60 Hz. power line frequency.

The random noise is generated by any kind of arcing in control contacts, motor brushes, thermostats, thermal cutouts, gas discharge tubes (neon, fluorescent), and sometimes from leaky high voltage line insulators.

This noise is "chopped" 120 times a second, since the 60 Hz. power line voltage goes through zero twice for each cycle. These characteristics are most easily seen when your TV receiver gets a heavy dose of it: two wide horizontal bars of random "snow" (noise) appear on your screen. You see two bars because of the nominal 60 Hz. vertical deflection rate. Since the power line voltage goes through zero twice, the noise peaks also occur twice per cycle but in opposite polarities.

Another characteristic, when the noise is seen on a television set screen, is that the bars of snow move slowly in a vertical direction. This is because under the NTSC TV color signal standards, the vertical deflection repetition rate is not exactly 60 Hz. but is really only 59.94 Hz., therefore the slow movement, or "beat" between the power line frequency and the TV vertical repetition rate.

Of course, power line noise, due to the characteristics described above, appears as aural interference also in AM receivers from below the AM Broadcast band up through the HF band, thus covering the Amateur low bands. It has a rough, raspy, random sound when heard, which is easily recognizable.

Now, when encountered, how can we locate the source? Direction finding, which first comes to mind, is not much help, because the interference is being carried and radiated by all power line wiring in the area where the interference is found.

Continued on Next Page

1983 CALLBOOKS

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(List $19.95) – $18.00

FOREIGN
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BOTH AND SAVE!
Only $33.00

Pls Add $2.00 UPS Shipping
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Prefix Map of World	1.50
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DX Guide	3.00
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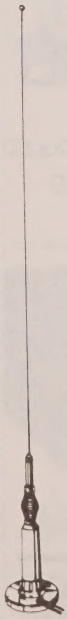
5/8 WAVE +3 DB GAIN



This 5/8 wave antenna delivers maximum gain and lowest angle of radiation.
It has a shunt fed matching section for lowest SWR (Typically 1.15 to 1).
When tuned to the band center, it will be below 1.5 to 1 SWR at band edges.
Features include a tapered 17-7 st. st. whip; shock spring; matching section; extremely strong 3" magnet with chrome plated steel cover. 15 ft. RG-58 coax and PL-259 attached.

MAGNET MOUNT

2 METER	MODEL #M-100	$ 18.95
220 MHZ	MODEL #M-200	

SAME AS ABOVE BUT OTHER MOUNTS

2M GUTTER MT	MODEL #G-100	
2M TRUNK MT	MODEL #T-100	$ 16.95
220 GUTTER MT	MODEL #G-200	
220 TRUNK MT	MODEL #T-200	

NOTE: SHIPPED PRETUNED TO THE CENTER OF THE BAND UNLESS ORDERED OTHERWISE.

SEND SASE FOR HAM CATALOG PAGE

MOBILE H.F. ANTENNAS

These popular helically wound, low wind load mono banders have both gain and band width comparable to conventional center loaded antennas, but, require no spring or guy wires for mobile use.
The hollow fiberglass base section allows the St. St. tip to telescope for field tuning. A chrome plated brass fitting will interchange with other popular antennas or fit all regular mobile mounts. Prox. 8 ft. long and 250 watts D.C.

75 M MODEL 9180 40 M MODEL 9140 30 M MODEL 9130 20 M MODEL 9120 15 M MODEL 9115 10 M MODEL 9110	$12.95	(3 OR MORE $12.00 EACH)

Extra st. st. whips 48" long 1/8" dia. tapered to 1/16" $4.00/ea.

Send check or M.O. (no bank cards) and include $3.00 for UPS shipment to:

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Anderson, SC 29624

WD4BUM **MOBILE ANTENNAS AND ACCESSORIES** 1-803-226-6990

Technical – Locating "Power Line Noise" Sources

Continued from Page 38

A better way is to use a multi-band portable AM/SW receiver tuned between stations. Starting with the lowest frequency band, try to maximize the interference sound by driving around in a car, or walking, and keep turning the volume down until you have pretty well located the general area affected.

Now, since the wideband random noise energy falls off slowly with increasing frequency, by going to the next higher frequency band and repeating the above procedure, you should be able to narrow the area in which you suspect the source to be located. Continue moving up to higher and higher bands until you get the smallest possible area for the probable source.

If you have narrowed the area to one house, then courteously enlist the aid of the resident by requesting that he/she allow you to turn off the house circuit breakers one at a time to see if one will stop the interference. Once you have found the individual breaker that kills the noise, then find what is on that breaker circuit in the house, and begin looking for a doorbell transformer with a bad thermal cutout, an arcing aquarium thermostat, a noisy AC/DC motor, a bad neon sign in a store, etc., etc.

You may run down the source to a single power distribution pole, or set of power line transformers, or a high voltage line tower. In this case, a call to your friendly power company will enlist them in ultimately locating and correcting the noise.

"Power Line Noise" is irritating and frustrating when it occurs, but with the proper procedure and a little common sense applied, it can be located and eventually eliminated or reduced.

Fifth District FCC Examinations

The Norfolk FCC office has announced Amateur examinations for 1983 will be sharply curtailed due to budget cutbacks.

Exams will be conducted at Greensboro on March 2 and September 14, and at Charlotte on August 2.

Persons wishing to go to these examination points to take exams are reminded to complete and mail their 610 form to the Norfolk FCC office at least two weeks prior to the examination date. The FCC will issue by return mail a pass entitling the person to be admitted.

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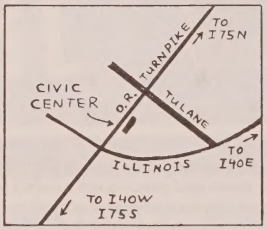

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ARRL Roanoke Div. League Planning Meeting Sked

The 1983 Roanoke Division ARRL League Planning Meeting will be held May 7-8 at the Holiday Inn Downtown at Myrtle Beach, S.C. under the auspices of the Grand Strand Radio Club, chaired by Dr. I.F. (Jack) Wood, Jr., WA4KGN.

The annual LPM is designed to bring the Amateur, League member together with their Director and League officials. The meeting enables persons wishing to discuss specific ideas, problems or programs directly with the League.

Special guests will include Vic Clark, W4KFC, President of ARRL, Bill Grenfell, W4GF, retired FCC, and Paul Rinaldo. Bob Halprin, K1XA, Deputy Manager of the ARRL Communications Department will be hand on the program from Headquarters. Other notables will be Gay Milius, W4UG, Director, and John Kanode, N4MM, Vice-Director.

For further information about the LPM program, write: Dr. I.F. Wood, Jr. WA4KGN, 903 Medical Plaza, 82nd Parkway, Myrtle Beach, S.C. 29577. (803) 449-3391.

For reservations call: 1-800-845-0313 outside S.C. In S.C. call: (803) 448-4481. When asking for reservation be sure to say you will be attending the "ARRL Convention" which is how reservations will appear on the computers. Reservations should be in by April 6. Entrance fee to the LPM is $10.00 in advance, $12.00 at the door.

Your Director Can Use Your Assistance

Most CVRA-SERA District Directors are sadly lacking help in their areas. Repeater users and owners are needed to keep them informed of repeater changes, callsign changes and general news happening around the District.

You can help in one of two ways. If you are a real dedicated ham, and want to become a part of our organization in the form of a committee member or Assistant Director, contact your local State Director. He needs Assistants who will TAKE time to watch, listen and ask about conditions, repeater changes, coordinations and many other things across his District.

If being an Assistant is not your cup of tea, you can still help. Listen to repeaters in your area, check their callsigns against those listed in the Repeater Journal. Send corrections to your Director. If you hear of club news, important news, or are good at writing feature material try your hand by sending news to your Director. Your State is only publicized by people from your State.

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Two Greenville Repeaters Now "Combined" – 1 Antenna

—by Murray D. Adams, WA4DAU

On December 19, 1982 the 147.09 and 145.35 repeaters located in Greenville, North Carolina, "combined". That is, both repeaters are commonly sharing the same receive antenna and sharing the same transmit antenna. How can this be done? Actually it is not very difficult if you have the right equipment.

Danny Hampton, K4ITL, was the mastermind behind our latest project. To combine the two receivers all we did was mount a "T" connector with two 13 inch leads made of RG-59 coax and ran one lead to the .09 receiver and the other lead to the .35 receiver. The T and 13 inch leads were mounted in an RF tight box. Combining the two transmitters was using the same principle TV stations use to combine their Aural and Visual signals.

In our case this was through our Phelps-Dodge six cavity duplexer. The duplexer was originally tuned for 147.69/09 so it needed to be retuned for 145.35 transmit and 147.09 transmit. Danny was gracious enough to do the retuning for us.

One half or three cavities were tuned to .35 and the other half to .09. With this 1.74 MHz separation between frequencies, Danny was able to obtain in excess of 120 db of isolation between the two transmitters. After everything was retuned it was time for the real test. How would the repeaters react when both were active at the same time? One word: Beautifully. Absolutely no interreaction between the two.

Splitting the receive antenna is supposed to give a three db loss but after comparing signal strengths before and after the difference was barely noticeable. That first night with the new system a Raleigh station checked in on each repeater with 300 milliwatts. Impressive for being 80 air miles away. The mobile coverage for each repeater is about 55 miles and fixed station coverage extends 65 to 85 miles under normal conditions.

1982 was a banner year for the 147.09 repeater and a remarkable one for the 145.35 repeater. Through our experiments and tests we have considerably increased coverage in Eastern North Carolina. Improvements to the system will continue to be made in 1983, although the effect will probably not be as dramatic as the ones in 1982.

Looking ahead to the spring, we hope to replace the stationmaster antenna with another Phelps Dodge dipole array. By using commercial grade equipment and antennas the repeater groups are making a committment to provide the best possible service to Eastern North Carolina. Both repeaters are financially supported by a small group of individuals. Dues, donations or membership are not necessary. The repeaters were installed to benefit and provide a service to the amateurs in the area. We hope we are providing that need. Any suggestions, comments or question are welcome.

ANTENNAS:
Transmit: Phelps Dodge dipole array
Receive: Phelps Dodge Superstationmaster

New CVRA Zip Code

The Greensboro Post Office Box for CVRA-SERA has a new zip code. The Post Office in sweeping changes to ultimately initiate the new 9-digit zip code is beginning by changing certain 5-digit zip codes at this time. The new Zip Code for all Greensboro Post Office Box mail for CVRA-SERA is 27435.

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Editorial Comment — Well Here We are

Continued from Page 1

through National manufacturers and distributers. As advertising linage increases, the number of pages of the Journal increases, making more news of interest to you.

I have always felt a magazine such as the Repeater Journal runs in sort of a triangle. Point one: More advertisers make a larger more attractive book, causing more people to subscribe and read. Point two: More people reading the book cause more circulation which is more attractive to advertisers. Point three: More readers and more advertisers working together strengthens our CVRA-SERA organization.

The main purpose of the Repeater Journal is to provide communications, education and swap ideas for readers in each of our CVRA-SERA districts. With this exchange of information, we strengthen our organization, as it needs to be, to continue coordination with repeater owners and prospective repeater owners. In the end, we hope to continue to keep your repeaters free from interference as much as possible.

—Wayne C. Williams, K4MOB
Editor & Publisher

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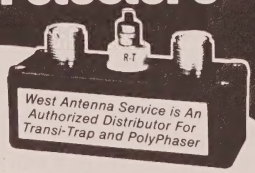

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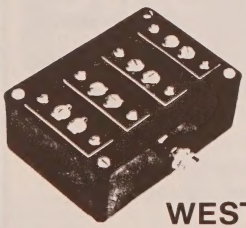

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SW Virginia Wireless Assn. Club is Formed

The Southwestern Wireless Association, Inc. has been chartered in the Roanoke Valley section of Virginia. It is an affiliate with the Roanoke Valley Amateur Radio club.

The new club meets at the Science Museum in Roanoke on the first Monday of each month at 7:30 p.m. Last month they received their charter from Mark Witt, NN4I, Assistant Director of the Roanoke Division, ARRL.

Objectives of the new club include promoting long distance DX, putting together a complete amateur station at the Science Museum, provide displays and work with future Telecommunications shows.

Some program highlights included the visit by N4ZV, Bart Prader on Feb. 5th with a CW demonstration and operation. Other seminars are scheduled including one by Bob Grove of Grove Enterprises speaking on extra-terrestial and sounds on the frequency spectrum.

The club will begin Amateur radio license classes running for 10 weeks. The instructor will be Rick Cook, AB4U. Some 20 people are signed up for the new classes.

North Carolina Early Bird Winner In Full Membership

Continued from Page 7

berships representing 185 "Early Bird" applications last year.

For 1983 the results:

North Carolina: 72 memberships, for 100 repeaters, 54% of all 185 repeaters in the State.

Virginia: 41 memberships, for 58 repeaters, 52% of all 135 repeaters included in the CVRA-SERA portion of the State.

Tennessee: 32 memberships, for 47 repeaters, 26% of the 184 repeaters in the State (By virtue of the length of the State, divided by natural boundaries, the Western part of Tennessee has less representation in our Organization than the East, although is growing yearly.)

South Carolina: 22 memberships, for 24 repeaters, 37% of all 65 repeaters in the State.

West Virginia: 20 memberships, for 28 repeaters, 47% of all 60 repeaters in the State.

Outside CVRA-SERA Territory memberships: Georgia, 8 memberships for 9 repeaters; Eastern Kentucky, 1 membership and Alabama, 1 membership.

Overall, there are in the five CVRA-SERA States 605 repeaters, CVRA-SERA has 42% or 257 repeaters, who are full members as of Jan. 1, 1983.

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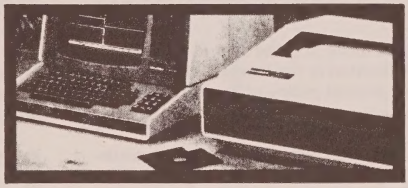

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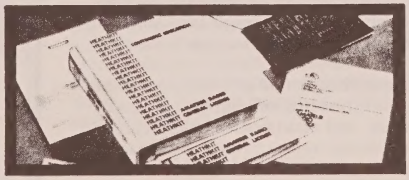

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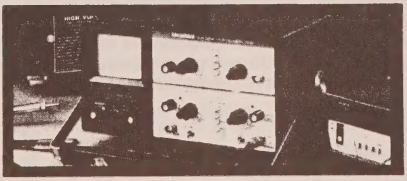

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High Point Club Changes Frequency On Local Repeater

—by Larry Frye, WA4EKD

The High Point Amateur Radio Club repeater, KA4DHP/RPT, went on a new repeater pair effective 20 December, 1982. The repeater is now operating on 147.765-147.165.

This change is due to the continuing problems we have had with intermod on the 265/865 pair.

The repeater moved off of 265/865 on one previous occasion to 147.72/147.12, but discovered that we were interfering with the Spencer Mountain repeater so we agreed to move back to the 265/865.

During the last six months it became apparent that something was going to have to be done. After conferring with the CVRA frequency coordinator and many club discussions the repeater committee was asked to come up with a solution that would be acceptable to all. Consequently Charlie Brady Jr., WB4DVN owner of repeater WR4AUA/RPT (Greensboro, N.C.) agreed to exchange frequency pairs with us.

This transaction was carried on in the true spirit of amateur radio. The cooperation between the club and Charlie was very friendly. A group could not have hoped for or asked for any better cooperation than that which the High Point Club received from Charlie.

The High Point Amateur Radio Club wishes to express once again its heart felt thanks to the CVRA, the repeater committee, and especially to Charlie Brady Jr., WB4DVN. The Club extends an open invitation to all to use the repeater.

Editorial Comment

Your Input is Needed

Continued From Page 1

With more people wanting to put on repeaters, conditions will get worse as time passes. The Board feels it is time to address a policy concerning new repeaters wanting frequencies, and a policy concerning uncoordinated repeaters which come on the air.

You repeater owners and users have some ideas of what should be done, or what course we should plot concerning coordination in the future. The one thing we know for sure, we have got to change our present policy of coordination. For years we have suggested putting new repeaters on 220 mhz and 440 mhz or 6-meters. It hasn't worked. Everybody wants another one on 2-meters.

Right now, there are enough repeaters on 2-meters in North Carolina to accommodate EVERY licensed ham operator in the State and then the average would be ONLY 57.6 users per repeater. Assuming only about half the Amateurs in the State are on two-meters, then the average drops to only about 29 average users for each repeater. So now you see our problem. Repeaters are growing in number faster than the Amateur population.

We solicit your input. Write your local State Director and give him your ideas of what course CVRA-SERA should take for the future in coordination. (1) Should they impose strict limitations on new repeaters, and additional requirements to existing repeaters, or (2) Should the distance between same channel and adjacent Channel repeaters be reduced, causing operator interference.

It's a tough choice to make, but we have to make one. As we said, repeaters will continue to come, we've got to put them somewhere. What are your opinions? How should our organization deal with coordination? How far should we protect the rights of existing repeaters? How much right should we allow a new repeater owner? How should we deal with uncoordinated repeaters? Write your State Director, or the Editor.

—Wayne C. Williams, K4MOB

MARK YOUR CALENDAR – DON'T FORGET!

The 32nd Annual-
Rock Hill Hamfest

OCTOBER 2, 1983

For advance information contact:
YORK CTY. ARS, BOX 4141 CRS, ROCK HILL, S.C. 29730

Savannah Hams Work Second C.P. Walkathon

—by Richard Smith, WB4APG

The second annual Cerebral Palsy Walkathon was held on November 13th, a cool crisp Saturday. Approximately two hundred youngsters had solicited pledges to raise funds for the local C.P. unit. About seven thousand dollars was raised during the 20 K walk.

Savannah area hams again furnished a ham radio safety net as well as putting up route markers, working at check points, and in a few of the cases, working as poop-out wagons.

The hams who took part were Don KA4BLS, Communications Chairman, Greg N4DBS, Bob WB4KOZ, Tom KA4RKX, Gil W4NNB, Carl WA4IOP, Dave N4EMN, Sarah KA4MXJ, and Richard WB4APG.

All communications took place on the Savannah 146.10/70 repeater. The equipment performed well as the walkathon traffic shared repeater time with normal traffic. The local hams received thanks from the C.P. Unit and used the event to showcase ham radio in action.

Lot of Repeaters Listed

The November 1982 issue of the Repeater Journal had 10½ states of updated repeater listing, totaling over 1,350.

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Aluminum mast pipes, feature 2-inch OD 6061 tubing with 1/4-inch wall.

12-foot lengths, 19 lbs – IN Stock
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Touch rust spots on your tower and antenna bolts with RUSTOLEUM, cold galvanizing.

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100-foot strapping kit.....$32.15

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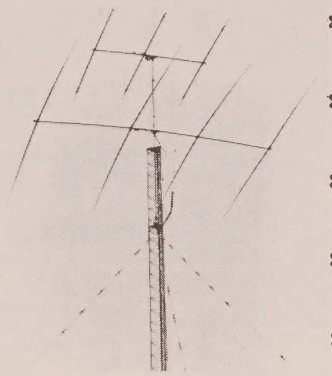

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We have a limited variety of utility pole hardware and can supply utility poles in the Greensboro, N.C. area. Call us if you have a problem we can design a system for you.

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Repeater Journal Classified ads are available to members to advertise Amateur and Electronic items for sale, buy, swap or trade. Items need not necessarily be electronic related. The CVRA-SERA assumes no responsibility as to the accuracy of description of equipment or its condition. Total responsibility lies with the advertiser and the buyer. CLASSIFIED AD RATE: Non-commercial or Commercial, $2.50 per ad. Enclose check with ad in advance of publication. Please limit classifieds to a maximum of 30 words.
DEADLINE FOR CLASSIFIED: 30 days prior to date of publication. Deadline dates are Jan. 1, April 1, July 1 and Sept. 1.

AZDEN PSC-2000 Two Meter Transceiver with all accessories. Like New – $225.00. Also old Police Radar Units, some operable. $35.00 each. BARRY LEVINE, WB4FLQ. (919) 288-9687, 4114 Lawndale Dr., Greensboro, N.C. 27400.

• • •

YOU GOTTA advertise it to sell it! Repeater Journal classified ads cost only $2.50 to show your message to over 4,000 readers. Deadline for the May issue is April 1st. Write our Advertising manager with your ad.

• • •

ASHEVILLE HAMFEST – The Western Carolina ARS announces a new Hamfest and Computer Fair in Asheville, N.C. on July 30 and 31. Dealers, see our advertisement in the May Journal for details, or write WESTERN CAROLINA ARS. P.O. BOX 1488, Asheville, N.C. 28802.

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IMPROVE A SANTEC! That's hard to do, but how about some new prices, and another new Santec on the horizon. See our Santec Ad this issue. WILLIAMS RADIO.

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FOR SALE: Drake 2-B. Mint Condition. All Crystals – $200.00. With manual and other info. WAYNE SHOPE, K4ANL, 4307 Briarhill Dr., Charlotte, N.C. 28215. (704) 536-3074.

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FOR SALE: Drake T4X transmitter, R4A receiver, AC4 P.S. and MN4 speaker cabinet. Good Condition with manuals. $350.00. This equipment remainder of Estate Sale from John Sabet, WB4HGS. Call or write HARWOOD WEST, WB4RLO. Rt. 6, Box 529-A, Greensboro, N.C. 27405. 1-800-334-4252.

• • •

FOR SALE: Yaseau FT-207R 2MHT includes rubber duck, NC-3 desk charger – AC adapter, leather holster, speaker mic, wall charger, PA-2 mobile cigarette lighter adapter. $200 – will ship UPS. Andy Pitt, WB8WEZ, Box 484, Welch, W.Va. 24801 – (304) 436-4161.

Classified Advertising

Your classified ad in the Repeater Journal will reach over 4,000 initial readers for only $2.50. That cost is only .000625 cents per person, or less than 6-cents per 100 people.

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ARRL League Planning Meeting May 7-8 at Myrtle Beach, S.C. Make Plans to Attend ....

FINANCIAL REPORT AS OF DECEMBER 31, 1982

REVENUES

Advertising		$ 6,211.70
Associate Membership dues		9,632.00
Full Membership dues		1,126.00
Other		344.28
		$17,313.98

EXPENDITURES

Journal mailing	$ 1,701.46	
Journal printing	12,593.20	
Miscellaneous expenses	318.63	
Directors meetings	759.41	
Office expenses	143.07	
Postage - other than Journal	361.24	
Printing - other than Journal	801.76	
Telephone	574.52	17,253.29
EXCESS OF REVENUES OVER EXPENDITURES		$ 60.69

Balances, January 1, 1982

Expenses advanced	$ 545.99	
Cash in bank	3,468.92	4,014.91
EQUITY TO ACCOUNT FOR		$ 4,075.60
Less: Expenses advanced	$ 700.00	
Invested in Copy Machine	2,240.00	2,940.00
CASH IN BANK		$ 1,135.60

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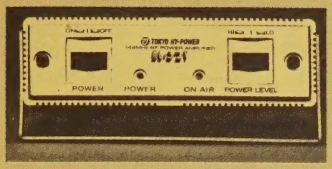

HL-32V VHF AMPLIFIER — The first of our super compact amplifiers for use with handheld radios. For VHF operations, this unit produces up to 25W output with drive from your 0.5W to 3W handheld. Low insertion loss on receive and selectable power level design provide low VSWR to the transceiver.

Excellent for mobile use in snuggly fitted smaller cars, this little beauty can be stowed under the seat, out of sight and out of mind.

The HL-32V operates linear mode for SSB or FM (switch selected), and the best news of all: the price is only $89.95 Suggested Retail!

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All stated prices and specifications subject to change without notice or obligation.

HL-160V VHF AMPLIFIER — This is our big 160W 2 meter linear amplifier which can work with a radio of 10W or even 3W output. This setup is achieved with a pair of rugged VHF R.F. transistors, using highly reliable one-board construction, and with the HL-160V's built-in 12db MOS-FET preamp.

The HL-160V has convenient front panel controls and select switches, LED indicators and a very reliable RF wattmeter. This big amp works SSB, CW, FM and AM modes, and it has a true coaxial relay on the output side.

When you need the power, the HL-160V is the power you need. $349.95 Suggested Retail.

Meets or exceeds FCC specifications.

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The ultra-compact HL-20U is a basic amplifier for all UHF handheld radios, and it can accept input levels from 200mW to 3W, to provide a big 20W output signal. Fixed antenuator design allows for full output from as low as 200mW drive.

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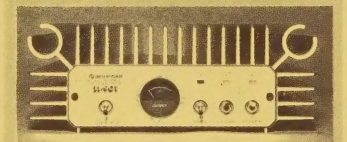

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